the magazine of STANDARDS

how good is a hearing aid? . . . . page 8

JANUARY 1961

in two parts . . . part one

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Vol. 32 No. 1 JANUARY, 1961

PART ONE

FEATURES

NEWS

DEPARTMENTS

PART TWO

Opinions expressed by authors in THE MAGAZINE OF STANDARDS are not necessarily those of the American Standards Association.

Published monthly by the American Standards Association, Incorporated, 10 East 40th Street, New York 16, N. Y.

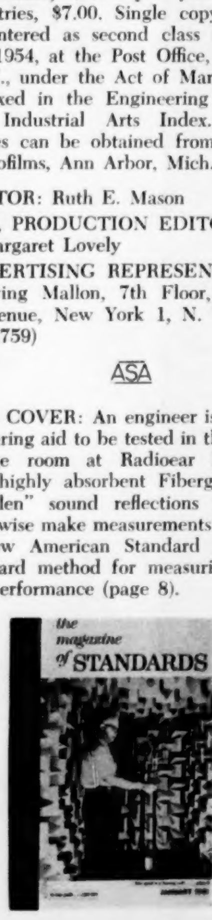
Officers of the American Standards Association

Subscription rates: Companies in U. S. and possessions, $7.00 per year; in other countries, $8.00. Public libraries, schools, and government agencies, in U. S. and possessions, $6.00 per year; in other countries, $7.00. Single copy 60 cents. Re-entered as second class matter Jan. 25, 1954, at the Post Office, New York, N. Y., under the Act of March 3, 1879. Indexed in the Engineering Index and the Industrial Arts Index. Microfilm copies can be obtained from University Microfilms, Ann Arbor, Mich.

EDITOR: Ruth E. Mason
ART, PRODUCTION EDITOR: Margaret Lovely
ADVERTISING REPRESENTATIVE: Irving Mallon, 7th Floor, 302 Fifth Avenue, New York 1, N. Y. (OXford 5-4759)

ASA

THE COVER: An engineer is setting up a hearing aid to be tested in the anechoic wedge room at Radioear Laboratory. The highly absorbent Fiberglas wedges "deaden" sound reflections that might otherwise make measurements inaccurate. A new American Standard provides a standard method for measuring hearing aid performance (page 8).



Radioear Corporation

• Innovations mark the New Year, 1961. In THE MAGAZINE OF STANDARDS, a guest column on standards problems, need for action, and current standards activities that make standardization a living and growing world-wide procedure starts this month. H. M. Jalonack, first guest columnist, discusses a problem that has bothered him in his work with committees developing standards on transformers (page 31).

notes

A new undertaking is announced this month (page 23) to improve information concerning industry standards and specifications that are equivalent to military documents. A well-known friend of standardization and former president of the Standards Engineers Society, W. L. Healy, has joined ASA's staff to work with the Bureau of Ships and industry.

An advertising representative starts work on behalf of THE MAGAZINE OF STANDARDS this month. Irving Mallon of Irving Mallon and Associates, New York, has had some 17 years experience in selling advertising space.

• Based on the new American Standard S3.3-1960 (page 8), the Hearing Aid Industry Conference has started to set up a system of numerical specification of hearing aid characteristics. S. F. Lybarger reports the aim is to be sure everyone is talking about the same thing. At present when referring to hearing aid gain of 60 decibels, some take the average of three frequencies, others use 1000 cycles per second. The new American Standard should help in reaching agreement, Mr Lybarger believes.

• The new American Standard Specifications for Anesthetic Equipment: Endotracheal Tubes (page 15) offers an example of useful international cooperation. This standard is essentially identical with British Standard 2927:1957, Anesthetic Airways. Coordination with the British Standard was achieved through joint meetings of the committees of the American Standards Association and the British Standards Institution.

This Month's Standards Personality

Douglas E. Parsons

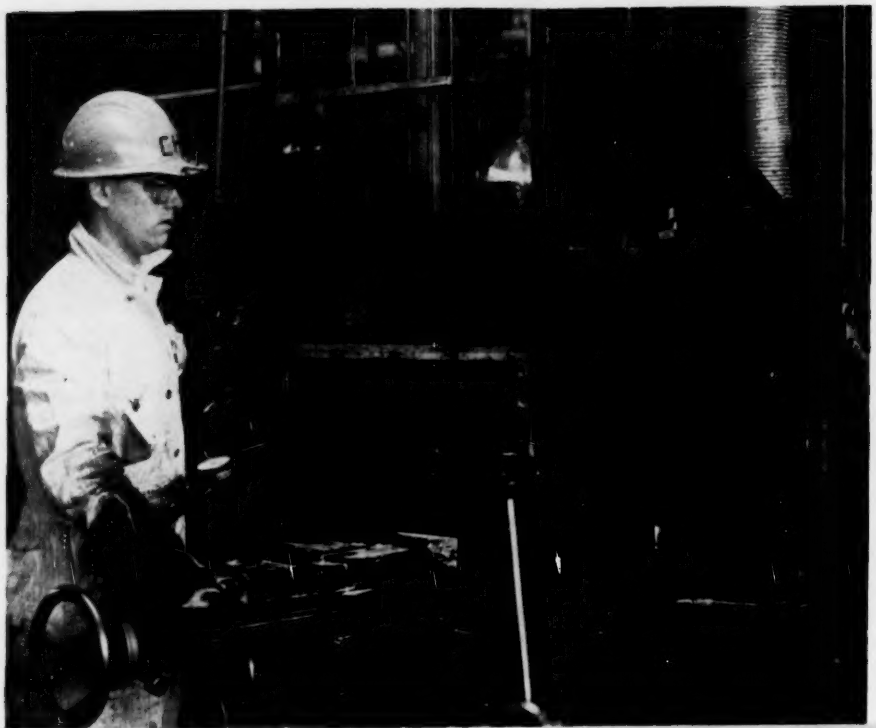
FOR SOME 36 YEARS, DOUGLAS E. PARSONS, chief of the recently reorganized building division of the National Bureau of Standards, has contributed his specialized knowledge and his talents as an administrator to the development of nationwide standards for building codes and materials. Mr Parsons' work has been of special service to the American Society for Testing Materials as well as to building standards committees under the procedures of the American Standards Association.

Mr Parsons joined the staff of the National Bureau of Standards as an associate engineer in 1923, after graduation from Cornell College with a C. E. degree. In 1928 he was appointed chief of the Masonry Construction Section, where he served until 1945. He then became chief of the Mineral Products Division, and since 1946 has been chief of the Building Technology Division. This division, has just been reorganized to form the Building Research Division, with Mr Parsons as its chief.

Realizing the importance of technical society activities, Mr Parsons became a member of the American Society for Testing Materials in 1924, a year after joining the Bureau's staff. He has actively participated in the ASTM work on building materials during his entire membership in the Society. From 1937 to 1948 he served as chairman of ASTM Committee C-15 on Manufactured Masonry Units. At the same time he became chairman of ASA Sectional Committee A41, Building Code Requirements and Good Practice Recommendations for Masonry. He is still chairman of Sectional Committee A41, which completed a new American Standard, Building Code Requirements for Reinforced Masonry, in 1960. He is also chairman of Sectional Committee A58, Building Code Requirements for Minimum Design Loads in Buildings, represents the Bureau on Sectional Committee A37, Road and Paving Materials, and is a member of ASA's Construction Standards Board. For several years he represented the Bureau on ASA's Standards Council.

Mr Parsons' services to ASTM were recognized in 1959 when he was elected an Honorary Member of the Society. Mr Parsons has been a director of the Society, a member of the Administrative Committee on Simulated Service Testing, a member of the Administrative Committee on Standards, and has represented the Society on the International Association of Testing and Research Laboratories for Materials and Structures.

His activities have not been confined to work with ASTM and ASA. A member of a number of professional and technical societies, Mr Parsons has served as president of the American Concrete Institute. Among honors received for his contributions to research and design in connection with concrete are the ACI Wason Medal, the Lindau Award, and the ACI's highest award, the Turner Medal.



LEFT: An enclosing hood and exhaust shown here provide ventilation to protect the workmen while machining toxic metals. The front of the hood, operated by an air cylinder, is not shown.

RIGHT: Here an enclosure with sliding doors controls heat, dust, and fumes from reaction kettles. The exhaust is from the top at rear.

Photos: Mallinckrodt Chemical Works

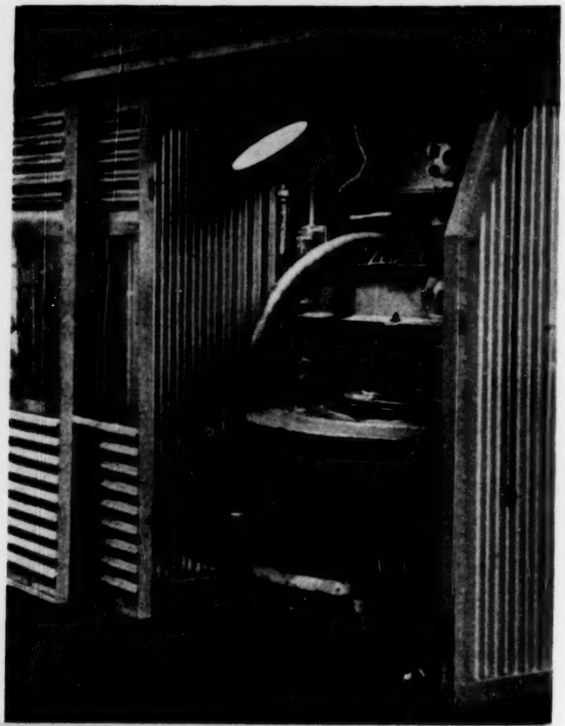
Ventilating Industria

by Arthur C. Stern and Knowlton J. Caplan

MR STERN is chairman of the Sectional Committee on the Safety Code for Exhaust Systems, Z9. He is with the Robert A. Taft Sanitary Engineering Center of the U.S. Public Health Service, Department of Health, Education, and Welfare, Cincinnati, Ohio.

MR CAPLAN, who is with the Mallinckrodt Chemical Works, Uranium Division, St Charles, Missouri, is chairman of the Editorial Committee for Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2.

This well-designed system of exhaust ducts removes dust and fumes created by a uranium extrusion process.



~~C~~ontaminants

THE CONTROL OF DUSTS, mists, fumes, vapors, and gases is an important aspect of industrial safety. Air-borne particles and molecules are sometimes toxic on inhalation, can irritate the eyes, nose, or skin and, by sensitizing a person, can cause a delayed allergic response. Both dust deposited on food and mucus containing dust filtered out by the nose can be ingested, thereby also providing a gastro-intestinal as well as a respiratory absorption route for toxic material. Even when dusts, mists, and fumes are non-toxic, they may represent safety hazards—fire and explosion hazards from combustible accumulations on floors, ledges, and rafters; slipping hazards from deposition on walkways; electrical hazards from entry into switches and appliances; and, last but not least, vision hazards. These latter may result from steam and other condensed vapors, fogs and mists from cutting, tempering, or quenching oils, smoke from forges and similar fires, and fumes from molten materials.

LOCAL EXHAUST VENTILATION

The most common means for the control of industrial aerosols is local exhaust ventilation—the capture of the contaminant air mixture as soon after its generation as possible and its transport through a duct system to an appropriate point of discharge to the atmosphere outside the building in which it was created. In some circumstances discharge to the atmosphere may be direct, relying upon atmospheric dilution to prevent re-entry of objectionable quantities of the contaminant into the workroom via windows, doors, or other air intakes. In other cases the exhaust system effluent must be passed through a dust or mist separator, filter, or scrubber before release to the atmosphere.

The difference between a local exhaust system and general workroom ventilation is that the former attempts to keep the contaminant out of the workroom air, whereas the latter allows it to become part of the air to which workmen are exposed. Although general ventilation is frequently used in addition to local exhaust systems, there are cases where a choice must be made between the two means of workroom ventilation. In such cases local exhaust ventilation is usually preferable.

Exhaust systems are also used to remove hot air from a workplace or workroom. Whether removing heat, contaminants, or both, exhaust systems create problems of maintenance of workroom temperature because of the need for make-up air to replace that exhausted. In winter, this means that make-up air must be heated. In summer, in air-conditioned workrooms, it must be cooled.

DESIGN OF SYSTEM COMPONENTS

Local exhaust systems seem deceptively simple to design and construct. Actually, a system assembled without recourse to the fundamental principles of air flow and particle flow into hoods, through ducts, transitions, fans, and collectors, past junctions, and into the atmosphere will in all probability be less effective and more costly to operate than a properly designed system. The purpose of the new American Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1960,[1] is to provide information on the design of such systems. The heart of a local exhaust system is the hood—that part of the system into which the contaminant-air mixture initially flows from its point of generation. Hoods vary in design among industrial processes to such an extent that special codes must provide details with regard to the specific hood designs and the air quantities needed for the many industrial processes that require hoods.

RELATION TO OTHER AMERICAN STANDARD CODES

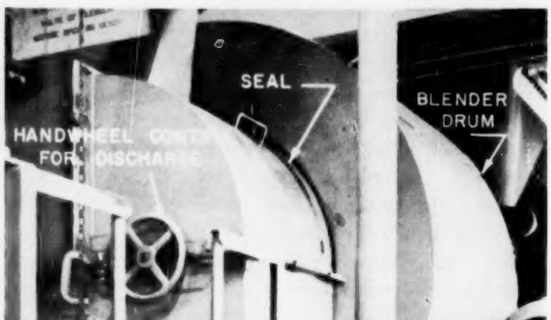
This new code therefore supplements other American Standard safety codes which are specific with respect to hood designs and air quantities required for certain industrial processes. Thus the American Standard Safety Code for Ventilation and Operation

[1] Copies of American Standard Safety Code, Z9.2-1960, Fundamentals Governing the Design and Operation of Local Exhaust Systems, may now be ordered from the American Standards Association at $4.00.

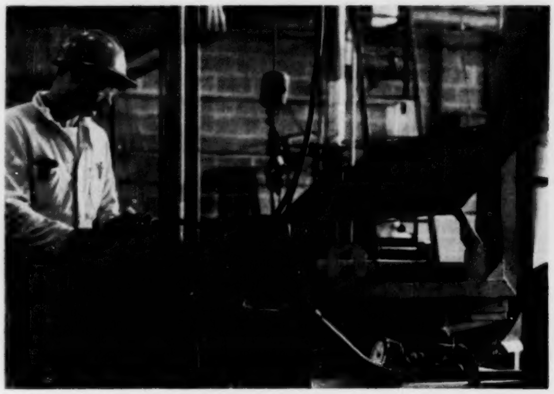
of Open-Surface Tanks, Z9.1-1951, carries the statement ". . . hoods, ducts, elbows, fans, blowers, and all other exhaust system parts, components, and supports thereof shall . . . conform in construction to the specifications contained in Fundamentals Relating to the Design and Operation of Exhaust Systems, Z9, in its latest revision." Further reference of similar intent appears in the section of the Open-Surface Tank Code on Static Pressure, wherein it is indicated that details concerning the nature and computation of exhaust system pressure losses are to be found in the latest revision of the "Fundamentals."

It is the ultimate goal of the sectional committee responsible for these two American Standard safety codes to produce additional codes covering other industrial operations. The one nearest completion is a proposed standard for ventilation and operation of surface coating operations which is in the final draft stage. Such new codes will also be referenced to "Fundamentals," thereby obviating the necessity for incorporating repetitious material in each of them.

"Fundamentals" differs from most standards in that the latter are usually quite specific with regard to a substance, article, or material, whereas "Fundamentals" covers a process—industrial exhaust ventilation—having very broad application. The code is organized in a form that will allow its use as a text in a course on industrial exhaust ventilation. As such, it should not be used alone but rather in conjunction with the Industrial Ventilation Manual of the American Conference of Governmental Industrial Hygienists, the Heating, Ventilating, and Air-Conditioning Guide of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, and one of the commercially published textbooks on exhaust system design.



Here a local exhaust hood has been adapted to a rotary blender that is used for mixing dusty powders.



RELATION TO PRELIMINARY EDITION

Those accustomed to refer to the original preliminary edition of "Fundamentals," which this new standard replaces, will find the format of the two quite similar. The authors of the new edition were well aware of the excellence of the preliminary edition and have retained in the new one much that was in the old. The principal difference between them is the addition of much new material and the inclusion of tables, figures, and other needed design data that the user of the earlier edition had to seek elsewhere. An example is the incorporation in the new edition of four tables not considered part of the standard but included to facilitate its use: (1) General Range of Control Velocities, (2) Minimum Control Velocities and Exhaust Rates for Typical Specific Operation, (3) Classification of Transport Velocities for Dust Collection, and (4) Examples of Transport Velocities.

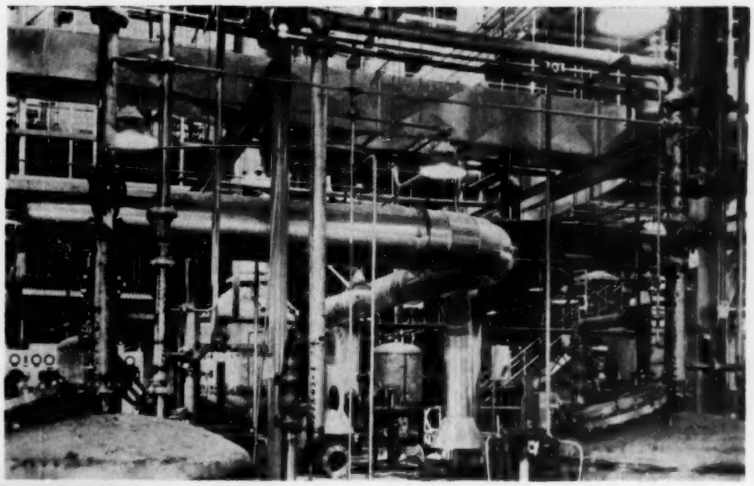
The new edition contains 28 figures as compared with three in the preliminary edition; 11 tables as compared with three in the earlier edition; ten sections in the new as compared with seven in the old. The section designations common to the two editions are Definitions, Plant Layout and Construction, Exhaust Hoods, Exhaust Ducts, Air-Cleaning Equipment, Exhausters, and Construction and Installation. Those added to the new edition are sections on Scope, Operation and Maintenance (which in the preliminary edition were combined with the section on Construction), and Checking Operation of Local Exhaust Systems.

In 1936, when the preliminary edition appeared, exhaust systems were just beginning to be designed scientifically. Prior to the 1930's most systems were designed by rule-of-thumb procedures, knowledge of which was part of the stock-in-trade of the master sheet metal worker. The publication of the preliminary edition of "Fundamentals" marked the beginning of the transition from rule-of-thumb to scientific exhaust system design. Scientific design has since

LEFT: In ventilating this open tank containing a solvent degreaser, air is exhausted through slots along the sides of the tank.

RIGHT: Here there is general ventilation of an area where flammable solvents are used. Round ducts exhaust air from the floor level. Rectangular ducts supply filtered, tempered fresh air.

BELOW: A battery of dust collectors is filtering dust from exhaust system air.



been aggressively promoted by the Industrial Hygiene and Industrial Safety units of the several states, the universities which train industrial hygienists, and those which offer extension courses in industrial exhaust system design. The most notable of these extension courses are those offered by Michigan State University, Lansing, and those conducted at various universities in New York State under the sponsorship of the New York State Department of Labor.

SECTIONAL COMMITTEE ON EXHAUST SYSTEMS

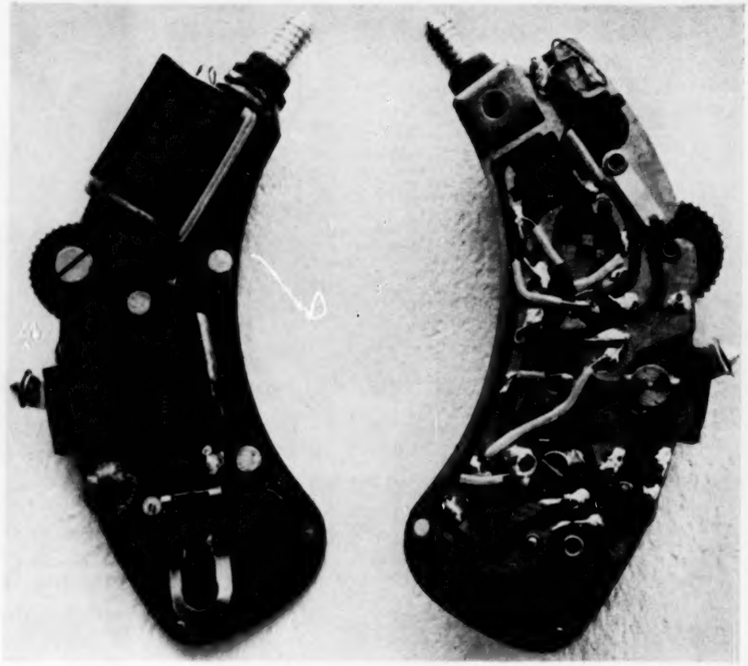
The Sectional Committee for Safety Code for Exhaust Systems, Z9, is one of the original safety standards committees set up in 1920. During its early years it was under the sponsorship of the International Association of Industrial Accident Boards and Commissions (IAIABC). Its first major publication, in 1936, was the preliminary edition of Fundamentals Relating to the Design and Operation of Exhaust Systems, Z9. (Note that the designation *Local* Exhaust Systems that appears in the title to the new standard did not appear in the preliminary edition.)

SUBCOMMITTEE ON FUNDAMENTALS

The 1936 edition was prepared by a subcommittee consisting of Theodore F. Hatch, chairman; M. I. Dorfan, W. M. Graff, L. Greenburg, J. C. Hardigg, H. M. Nichols, W. L. Keplinger, G. E. Sanford, R. R. Sayers, and S. E. Whiting. In 1947, the Z9 Sectional Committee was reactivated with Theodore F. Hatch as chairman and a new subcommittee was appointed to prepare a final version of "Fundamentals" to replace the 1936 preliminary edition. This subcommittee consisted of Allen Brandt, chairman; K. J. Caplan, W. B. Harris, J. Kayse, R. D. Madison, G. E. McElroy, B. F. Postman, R. T. Pring, K. E. Robinson, L. Silverman, and A. C. Stern. Not long after its reactivation, the sponsorship of the sectional committee changed from the IAIABC to joint sponsorship by the American Industrial Hygiene Association, the American Society of Heating and Ventilating Engineers, and the National Association of Fan Manufacturers. The latter two associations have subsequently changed their names but have remained as sponsors. They are now, respectively, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers and the Air Moving and Conditioning Association.

The secretary of the sectional committee since 1949 has been Henry G. Lamb of the American Standards Association staff. In 1954, Theodore F. Hatch resigned as sectional committee chairman and Arthur C. Stern was elected his successor. In 1955, the subcommittee to redraft "Fundamentals" presented its revision. One of its members, Knowlton J. Caplan, was then given the responsibility for incorporating into the subcommittee draft the changes recommended by members of the sectional committee and for developing a final draft standard. The standard as finally approved by the sectional committee, its three sponsoring organizations, the ASA Safety Standards Board, and the Standards Council, is therefore principally the work of the subcommittee under the chairmanship of Theodore F. Hatch and Allen Brandt that respectively drafted the preliminary and revised versions of the Code, and of the authors of this article who did the extensive final editing job.

Total length of this chassis of a modern "behind-the-ear" hearing aid is only 1¾ in. The rectangular microphone and earphone are seen at the left; the etched wiring with resistors bonded to the chassis plate is shown at the right.



How GOOD Is a Hearing Aid?

New Standard Provides Method of Measuring Performance

by S. F. Lybarger

Since the introduction of the junction transistor in 1953, hearing aids have become an increasingly important means of helping those with hearing impairments. Reduction in size, improvement in acoustic quality, and introduction of hearing-aid types much easier and less conspicuous to wear than was ever thought possible, have resulted in greatly increased public acceptance of electronic hearing devices. Hearing aids are made as glasses, as barrettes, for behind-the-ear use, and for use directly on the ear, as well as in the form of the conventional body hearing aid. It is estimated currently that some 350,000 to 400,000 persons receive benefit from the use of new hearing aids each year.

The average hearing losses of these hearing-aid users ranges from perhaps 25 decibels to as much as 95 or 100 decibels in extreme cases. In some instances, hearing shows little change with frequency (number of vibrations of the sound waves per second), in others it falls strongly with frequency, and in a few it rises with frequency.

Accurate information on the performance characteristics of hearing aids is an important prerequisite to properly selecting or "fitting" them to this large variety of impaired ears. Good performance information, properly interpreted, also provides a good estimate of a hearing aid's basic acoustic quality.

MR LYBARGER, vice-president of E. A. Meyers & Sons, Inc, Canonsburg, Pa., was chairman of Writing Group S3-W-34 on Hearing Aids of Sectional Committee S3, which prepared the manuscript for the new American Standard S3.3-1960.

The vigorous development of the transistorized hearing aid in the last few years emphasized the need for a revision of the original American Standard Method for Measurement of Characteristics of Hearing Aids, Z24.14-1953. This original standard was primarily developed for use with vacuum-tube hearing aids, although, of course, its principles have been extended to other types.

As a result of the recognized need for a revised standard, Sectional Committee S3 recently completed the revision. American Standard Methods of Electroacoustical Characteristics of Hearing Aids, S3.3-1960, has now been approved and published by ASA.[1]

In addition to bringing Z24.14-1953 fully up to date in light of modern air-conduction hearing-aid measurement practice, American Standard S3.3-1960 is closely allied in content to a recently issued International Hearing Aid Standard (IEC Publication 118). Some of the objectives achieved in the new standard are:

(1) The test methods are intended to be applicable regardless of the type of hearing aid—vacuum-tube, transistor, or "futuristor," if one is invented.

(2) A full set of definitions of terms used is provided.

(3) Measurement conditions and procedures for important hearing-aid characteristics are clearly defined so that reproducible results can be obtained by different laboratories.

[1] Copies of American Standard Methods for Measurement of Electroacoustical Characteristics of Hearing Aids, S3.3-1960, can be ordered from the American Standards Association at $1.00 each.

(4) A compatible system of tolerances is established.

(5) New 2-cubic centimeter (cc) coupler forms are added to take care of the newer earphone designs employed in eyeglass and behind-the-ear hearing aids.

To make accurate tests on a hearing aid, it must be placed in a very low-noise environment with "free-field" sound reaching it at specifically defined input sound pressure levels. The acoustic output of the hearing-aid receiver is then measured in a 2-cc coupler by a calibrated condenser microphone.

After defining the various terms used, the standard establishes the requirements of the sound source, both as concerns the accuracy of sound pressure level produced in the sound field and as concerns the purity of tone required.

The complete characteristics of the 2-cc coupler used to measure the acoustic output of the earphone are specified and illustrated. In specifying the coupler, the coupler cavity itself is first carefully defined and then three types of acoustic tube connections from the receiver to the coupler are shown. One of the tubes defined is for use with the conventional "insert" earphone; two other arrangements take care of earphones connected by the various length tubes commonly used on eyeglass, behind-the-ear, or in-the-ear hearing aids.

The standard carefully spells out the tolerances and frequency-response characteristics of the apparatus used for measurement of sound pressure levels, as well as the permissible system distortion and meter errors due to non-sinusoidal signals.

By careful specification of test conditions, such as indicated above, good reproducibility of results from one laboratory to another can be anticipated.

Perhaps the most important quantities to the person using hearing-aid test information, such as the hearing-aid dealer or the audiologist, are the frequency response, the "full-on" acoustic gain, the saturation sound pressure level,[2] and the harmonic distortion characteristics. Procedures and test conditions are provided for measurement of all the above quantities. Procedures are also detailed for the following: characteristic of the gain control (gain vs rotation); effect of tone-control positions on frequency response; effect of supply voltage variation on acoustic gain; and the measurement of battery current.

The revised standard is the work of a writing group having wide representation from various areas concerned with the use and application of hearing aids. Included were engineers from several hearing-aid manufacturers and representatives from the National Bureau of Standards, the Veterans Administration, and the American Speech and Hearing Association.

The new standard was sponsored by the Acoustical Society of America.

[2] These terms are defined in American Standard S3.3-1960 as follows: *Frequency response* is the relative acoustic gain of the hearing aid expressed as a function of the frequency. *Full-on gain* is the acoustic gain of the hearing aid with its gain control at maximum setting and with a stated input sound pressure level. *Saturation sound pressure level* is the maximum root mean square sound pressure level obtainable in the coupler for the earphone of the hearing aid allowing all possible values of the input sound pressure level.

Photos: Radioear Corporation

A high degree of craftmanship is required for the precision assembly of the chassis-amplifier for a "behind-the-ear" hearing aid.

DOLLAR SAVINGS

by reducing item varieties

by CHARLES W. STOCKWELL

INDIVIDUALISM—A NATURAL FACTOR in the makeup of the human personality—creates an urge to be or to do something different from the mass and contributes to the designer's desire to make his design just a little bit different. Such individualism expressed in design by scores of engineers and designers contributes materially to the influx of item varieties. Each individual item variation by itself is not of serious consequence. It is the accumulation that creates the burden.

The introduction of an item variation may appear relatively simple and routine at the time. However, if you look further than the designer's drawing board, it is obvious that complication sets in almost immediately. For example, a single variation of design establishes:

(1) A new drawing to be added to the original drawing file and security file.

(2) Another drawing for which prints must be made in quantity for distribution through the production organization.

(3) Another item for the planning department to review to determine availability of tooling, processes, raw material requirements, etc.

(4) Another time study to determine job rate.

(5) Another item to release for competitive bid by Purchasing if procured outside of the company.

(6) Another bin or storage area in the production materials stores inventory.

(7) Another item to be considered for service if made available.

(8) Another item for which to provide service inventory and the necessary bin or storage area to warehouse it.

(9) And if the product is sold through dealers or distributors, they, too, face many similar problems.

There are other numerous additions to work loads in the way of paperwork, record maintenance, inspection, cataloging, etc.

It would be an unusual company that has not been faced with this same sort of complication. Undoubtedly, many of them have made notable progress in solving the problem. Therefore, if I confine my remarks to International Harvester, it is only because I have had first-hand experience with its accomplishments in this area.

Let us look at some examples. International Harvester has three major product divisions which contain seven product engineering departments concerned with the development and design of our many product lines. To produce these products we have 19 manufacturing plants. Service parts for these products are fed into our supply system through 12 strategically located parts depots which, in turn, supply 6,852 dealers and distributors, and 276 branches and company-owned stores. These figures, however, do not include the service parts pipeline required to provide parts for outlets in 143 foreign countries in which we do business.

We have long since recognized the fact that certain items which we were designing into our new machines were very closely related to parts or units already in production. Despite earlier efforts at control, we felt it was inevitable that the situation still offered great potential for cost savings. Just how great, we did not know until we made a study of the problem.

To obtain an average figure, we took four items, consisting of two sprockets, a gear, and bearing box—considering these items as being representative of common-use parts. We polled 16 separate departments and groups to determine reasonable fair cost incurred in their processing of an average part. These 16 cost figures, based on the time, material, and wages required to produce these parts, were grouped in three general areas:

$ 56.36	to design, produce, and "paperwork" one of these parts through product engineering.
1,118.73	to process through the various manufacturing departments.
385.20	for service parts depot warehousing, record keeping, and handling—this does not include service parts inventory cost.
$1,560.29	total estimated cost per new item.

IF WE MAKE A CONSERVATIVE ESTIMATE that each of the eight product engineering departments produces five new machines per year with five common-use parts on each, the total new common-use parts introduced is 200 per year. Simple arithmetic of $1,560 x 200 parts equals $312,000. This showed us that, conservatively, the introduction of new common-use parts was costing us considerable money.

From this investigation a decision was reached to establish a Common Usage-Standardization Program at the divisional level. Each divisional common usage group generates tabulated lists of selected items

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MR STOCKWELL, chief of engineering standards, International Harvester Company, is a newly elected member of the Administrative Committee of the ASA Company Member Conference. His paper, from the consumer viewpoint, was presented at the session on Motivations for Reducing Item Varieties at the 1960 Spring Meeting of the CMC. Mr Stockwell calls attention to the fact that the International Harvester Company's Farm Equipment Division should be given credit for assisting in preparation of the cost data used in the paper.

tnat have standardization potential. The existence of a common usage list for the same item in two of the three divisions prompts review by the Engineering Standards Office for the possible development of a company-wide engineering standard for the part in question. Though this process does not always lead to standardization, it usually does result in a highly desirable variety reduction.

To cite another project for reduction of item variety, several years ago we were concerned with the multiplicity of oil seals used in our products. We established a project to see what could be done to police this problem. Through this effort we were able to prevent the assignment of 750 new part numbers and permanently eliminated some 975 part numbers from service records. The recordable total savings amounted to approximately $188,500. In addition, of course, there were intangible savings at numerous company operations. Since this is a continuing effort, the actual savings, to date, are probably two to three times this amount.

Reduction of item variety is indeed a fertile field. A company does not get these savings for nothing, of course, but the net savings far exceed the cost of implementing such programs.

We have also made a concerted effort to reduce the large variety of bolt-length increments which were being produced by our company's bolt-making facilities. We found this operation had 2,376 part numbers in the production records covering various lengths of standard bolts, 750 of which conformed to the stock pattern of the bolt industry. Manufacturing this large variety of bolts in these various increments necessitated innumerable changes in tool setups, resulting in down-time and productivity losses. An analysis indicated the average down-time per change-over involving a single die station had an average billing value of $53.37. A further analysis indicated an average of 75 change-overs in a 24-hour period, or conservatively 15,000 change-overs per year. The Engineering Standards Office initiated an educational program in the divisional engineering departments, pointing out this large variety of standard bolts and recommending a plan to reduce this number to the 750 stock bolt lengths recognized by the bolt industry. It was estimated that our bolt manufacturing facility could conceivably gain upward of $200,000 in productivity annually as well as substantial savings in tool costs if this program could be maintained. Indications at the present time are that this program was successful, that the variety was substantially reduced, and that the estimated productivity gain was realized to a great extent.

Motivations for reducing item varieties? Savings and cost reductions exceeding $700,000 are indeed sufficient motive to promote continued efforts to reduce item varieties. However, the money-in-the-bank benefits of item reduction or standardization are not in the glamorous reductions achieved through belated efforts after an engineering release. Their real significance is realized in the day-to-day application of proven items—at the design stage.

I recently saw a quotation from the Drop Forging Association's *Forging Topics* which read as follows:

"At a quick guess, most of us would say that the automotive or steel industries have the biggest net investment in equipment . . . and we'd be wrong. It is the *farming* industry that is biggest—$17.7 billion big, according to a recent estimate by the Federal Reserve Board.

"That's $10 billion more than the net investment in the steel industry and five times the investment in auto industries. Big Business!

"What has the farmer bought with all these dollars? *Mechanization* . . . automotive machinery for every farming task—tilling, fertilizing, planting, cultivating, spraying, and harvesting.

"Parts production for these machines reaches staggering totals, too. As an example, consider the kinds and variety of *forgings* used in farming equipment . . . Parts and equipment like this help today's farmers produce 54 percent more food than in 1930, with a 37 percent smaller farm population. It hardly needs to be added that both parts and equipment must be and are dependable!"

The farm machinery industry is not only a big business but it is also an extremely highly competitive business. Can item reduction be accomplished in this industry on a national basis? I would say that the answer is yes—with qualifications. Efforts in this direction are and have been fostered through the Farm Equipment Institute.

The Farm Equipment Institute as such does not publish standards but through its Advisory Engineering Committee it develops and recommends to organizations such as the American Society for Agricultural Engineers, Society of Automotive Engineers, and the American Standards Association, standards relating to farm implements and tractors. Through this committee the FEI develops recommendations acceptable to the American farm equipment industry for submission to the technical committee on agricultural machines, TC 23, of the International Organization for Standardization.

My personal observation of certain groups from this industry institute permits me to say that the participating companies are very cooperative in this effort. However, because of the highly competitive market, proprietary interests, and other aspects, the exchange of information is somewhat restricted and limited. In the face of these restrictions and limitations, however, certain industry-wide item reductions have been accomplished through this medium.

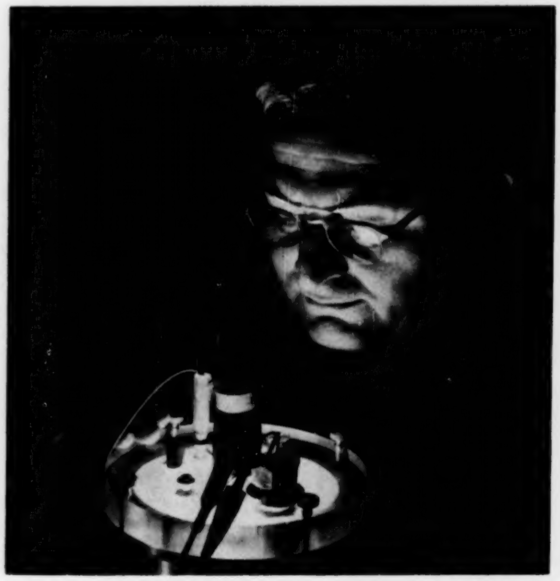
All industry, regardless of the field of activity, has a common motivation for reducing item varieties which may be summed up in two words—DOLLAR SAVINGS.

world adopts

NEW STANDARD OF LENGTH

—From the National Bureau of Standards

ABOVE: NBS scientist inserts a krypton-86 lamp into its liquid nitrogen bath. The wavelength of the orange-red light emitted by the lamp has been adopted as the International Standard of Length. The lamp is operated at the triple point of liquid nitrogen, 63 K, to increase the stability of the standard wavelength. BELOW: The scientist adjusts the lamp in its liquid nitrogen bath.



ON OCTOBER 14, 1960, the world adopted a new international standard of length—a wavelength of light—replacing the meter bar which has served as the standard for over 70 years. The action was taken by the Eleventh General Conference on Weights and Measures.

Dr Allen V. Astin, director of the National Bureau of Standards, was head of the American delegation to the Conference. The delegation also included Louis Polk, president, Sheffield Corporation; Elmer Hutchisson, director, American Institute of Physics; A. G. McNish, chief, Metrology Division, National Bureau of Standards; T. H. Osgood, U.S. Scientific Attache, London, and Martin Van Heuven and Benjamin Bock, U.S. State Department.

The Conference also established a central facility at the International Bureau of Weights and Measures for international coordination of radiation measurements and confirmation of a new definition of the second of time.

The new definition of the meter as 1,650,763.73 wavelengths of the orange-red line of krypton 86 replaces the platinum-iridium meter bar which has been kept at Paris as an international standard for length since 1889 under the Treaty of the Meter.

These actions of the General Conference are of great importance to those engaged in precision meas-

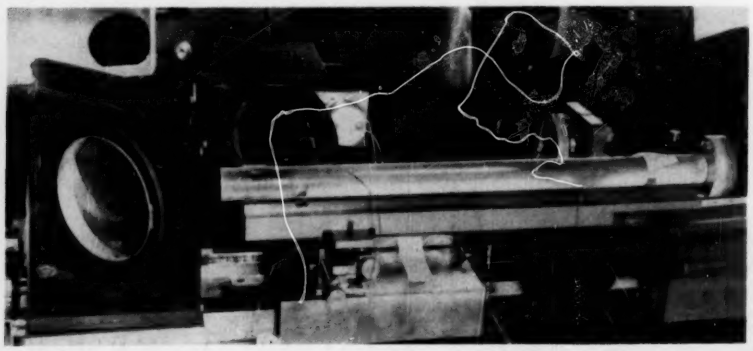
urement in science and industry. For many years the world has relied on a material standard of length—the distance between two engraved lines on the international meter bar kept at Paris. Duplicates of the International Standard were maintained in the standards laboratories of other countries of the world. From time to time it was necessary to return these duplicates to Paris for recalibration. Occasionally, discrepant results were obtained in these recalibrations. Also, there was doubt in the minds of some scientists regarding the stability of the international meter bar. The new definition of the meter relates it to a constant of nature, the wavelength of a specified kind of light, which is believed to be immutable and can be reproduced with great accuracy in any well-equipped laboratory. Thus it is no longer necessary to return the national standards of length to Paris at periodic intervals in order to keep length measurements on a uniform basis throughout the world. Also, it is possible to measure some dimensions more accurately in terms of the new definition than was possible before. The meter bars which have served as standards of length throughout the world for over 70 years will not be discarded or placed in museums because of this decision, the Conference said. They will remain important because of the ease with which they can be used for certain types of measurement.

This new definition of the meter will not materially change the measurement of length nor in any way the relation between the English and metric units. Careful experiments performed at the National Bureau of Standards by the team of A. G. Strang, K. F. Nefflen, J. B. Saunders, B. L. Page, and D. B. Spangenberg immediately prior to the meeting of the Conference confirmed that the wavelength standard and the metal standard are in satisfactory agreement. The inch now becomes equal to 41,929.399 wavelengths of the krypton light.

Similar measurements performed by the National Research Council in Canada, by Dr K. M. Baird and his associates, are in substantial agreement with the National Bureau of Standards results. They all show that the distance from a point in New York to a point in Washington would be altered by less than three inches, as measured in terms of the old metal standard and the new wavelength standard. However, by adoption of the new definition, the standard of length which has been used by spectroscopists for the past 50 years is brought into agreement with that used in other branches of science, thus increasing the unification of systems of measurement throughout the scientific world. Although the conferees recognized that the new definition may have the effect of shortening the meter, the amount of shortening will be less than 1/5000th part of the thickness of one thin dime.

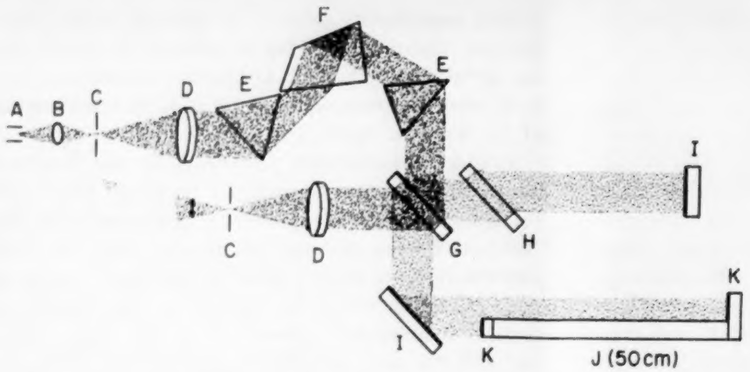
The establishment of a central international facility for measurement of x-rays, radioactive isotopes, and neutrons will assure that all nations of the world will be able to make coordinated measurements of these radiations. To accelerate the planning of this major effort to establish world-wide standards of radiation measurement, the Ford Foundation has made a grant of $32,500 to the International Bureau of Weights and Measures which was accepted by the Conference.

The Conference confirmed the action of the International Committee on Weights and Measures in de-



Part of the instrumentation used in measuring length with the new International Standard. The object to be measured is the quartz bar (foreground). The ends of the bar are optically detected by the mirrors optically wrung to the right and left ends of the bar. An interferometer is used to detect the separation of the two mirrors in terms of wavelengths of the orange-red line of krypton.

U.S. delegates to the International Conference on Weights and Measures, Paris, France, which agreed on the new International Standard, (left to right) Louis Polk, president, The Sheffield Corporation; Dr Allen Astin, director National Bureau of Standards; Dr Elmer Hutchisson, director, American Institute of Physics.



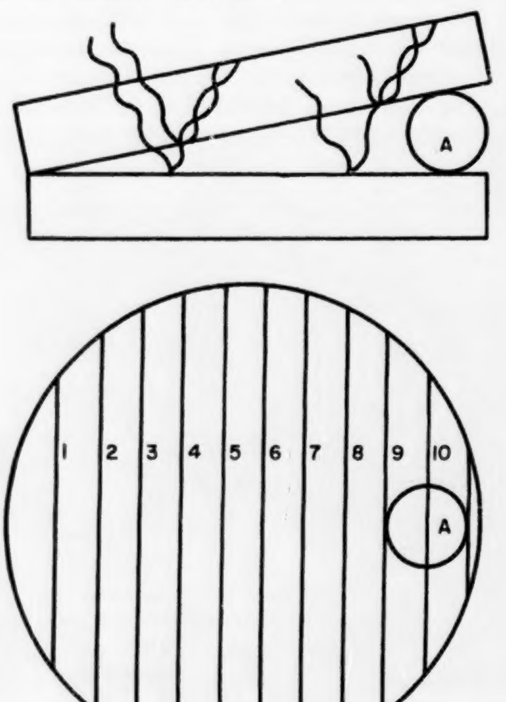
Schematic diagram of the instrumentation used to calibrate a 50-cm quartz end standard in terms of the krypton-86 wavelength: A, Kr-86 lamp; B, lens; C, circular slit; D, lens; E, 60-deg prism; F, constant deviation prism; G, beam splitter (partial dielectric coating on one side); H, compensating plate; I, total reflecting dielectric mirror; J, end standard; K, total reflecting end plate.

fining the second of time as 1/31,556,925.9747 of the tropical year 1900 instead of 1/86,400 part of the mean solar day, and discussed the possibility of using atomic vibrations as standards for measuring time intervals.

THE QUESTION naturally arises—how can light waves, a form of energy, be used to measure length, a physical quantity? Light is a visible form of radiant energy emitted by atoms and propagated as waves. Two light waves, if they have the same wavelength and are travelling in the same direction, may interfere with one another. If the waves are superimposed, their energies will be combined, and a brighter illumination will result. However, if one wave trails the other (i.e., if the two waves are out of phase) by one-half wavelength, the two will cancel, and darkness will result. If the path-lengths of two similar light rays differ by as little as 1/10 wavelength, interference will result. Optical measurement of this interference, together with a knowledge of the wavelength, permits extremely accurate determination of length. Because the atoms that emit light are vibrating at a tremendous rate, the phase of the light they produce is constantly changing. For this reason, only light from a single source can be used to produce detectable interference.

The interferometer is the device used to measure the meter by means of light waves. Krypton 86, the source of the new standard of length, emits an orange-colored light having 1,650,763.73 wavelengths to the meter. By means of optical instrumentation, this light is "laid" alongside the meter bar that has already been mechanically determined to an accuracy of less than one wavelength. Using an interferometer, one can then measure down to the fractional part of a wavelength by which the bar differs from the standard meter defined in krypton 86 wavelengths.

An example of a simple interferometer is that made with two optical flats—disks of glass or quartz whose facing surfaces are planar. These are positioned one on top of the other, making contact at one edge and separated at some other point by the object to be measured. Single-color (monochromatic) light is directed at the upper surface, and each ray is divided into two portions. One portion is reflected by the lower surface of the upper flat, and the other passes through to be reflected from the upper surface of the second flat. These rays are recombined in the upper flat, and form alternate dark and bright bands. Each dark band or fringe of this pattern represents a separation of the two flats by an even number of half wavelengths. By counting the number of fringes between the edge and the point of contact with the sample, the height can be calculated. This is done by multiplying the wavelength of the light used by one-half the number of dark bands.



Side and top views of flats being used to determine height of object A. At points where reflected rays are out of phase by one-half wavelength, dark bands appear in the upper flat. Top view of device, at bottom, shows 10 fringes between the two points of contact.

To Aid the Sick —

a Standard for Endotracheal Tubes

by Dr Hamilton S. Davis

The initial phase of a program designed to standardize certain interchangeable items of anesthetic and resuscitation equipment has been completed with approval of American Standard Anesthetic Equipment: Endotracheal Tubes, Z79.1-1960.[1] This standard was approved by the American Standards Association on April 22, 1960. Initiated in the fall of 1955 by the American Society of Anesthesiologists, which sponsors ASA project Z79, the standard represents the cooperative efforts of interested physicians, anesthesiologists, manufacturers of anesthetic equipment, nurses, hospitals, gas manufacturers, the Armed Services, the Veterans Administration, and other interested organizations. The new standard specifies terminology, dimensions and tolerances, labeling, and materials for endotracheal tubes.

In use in most regions of the world today, endotracheal tubes are curved tubes which are inserted by trained individuals into the windwipe (trachea) of unconscious persons to facilitate resuscitation or application of general anesthesia. As modern medicine reaches remote parts of the earth, the use of endotracheal intubation in many indicated situations will become commonplace. Properly inserted, such tubes provide an unobstructed pathway for flow of anesthetic gases or life-supporting oxygen, prevent inhalation of vomitus or blood by unconscious individuals or, if such has already occurred, allow removal of such foreign material by suction through the tube, thus preventing pneumonia, suffocation, and subsequent death. Further, it provides a clear passage for breathing in victims of obstruction of the voice box (larynx) resulting from diseases such as diphtheria, croup, allergic edema, and poliomyelitis, to name only a few, as well as allowing efficient artificial respiration through pressure breathing with air or oxygen. Such applications find widespread use throughout the world in industrial accidents, fires, drownings, electrocutions, automobile accidents, and many other catastrophes both at the immediate scene of the accident and subsequently in the hospital. In many instances, life-threatening obstruction to breathing from various causes can be alleviated by insertion of an endotracheal tube; if a tracheotomy is subsequently necessary, it can be performed under proper conditions in a hospital, thus avoiding the frequent complications associated with emergency tracheotomies.

In addition to relieving respiratory obstruction in emergency situations, these tubes find even wider application in surgery to be performed both near and within the respiratory system itself while smooth, safe general anesthesia with adequate oxygenation is maintained. The entire fields of head and neck surgery and intrathoracic surgery, including cardiac surgery, are made possible through endotracheal anesthesia.

With the application of endotracheal intubation spreading every day as professional persons trained in its use move into even the most backward regions of the world, it becomes imperative that there be sufficient uniformity in construction and availability of these tubes throughout the world to allow their proper use without loss of time and with the assurance that they can be connected to adjacent pieces of equipment with satisfactory connections at any time and in any place. The first step toward international standardization of endotracheal tubes has been taken through negotiations leading to substantially similar standards on endotracheal tubes in the United States and the United Kingdom. These standards were worked out through close cooperation between ASA Sectional Committee Z79 and its counterpart in England, the British Standards Institution Technical Committee SGC/15, Standards for Anesthetic Apparatus. Because the United States and Great Britain are by far the largest producers of anesthetic equipment in the world today, and because the countries of Western Europe have indicated willingness to follow standards arrived at by these two countries, the probability of international standards seems very close. The machinery for arriving at these international standards will be the International Organization for Standardization.

Sectional Committee Z79 continues its work on further standards related to items in anesthesia and resuscitation circuits under its present officers, Dr Hamilton S. Davis, chairman; Dr Vincent J. Collins, vice-chairman; and Dr Henry E. Kretchmer, secretary.

DR DAVIS is associate professor of anesthesiology, Western Reserve University School of Medicine; director of the Anesthesia Department, Lakeside Hospital, Cleveland, Ohio; and chairman of ASA Sectional Committee Z79, Standards for Anesthetic Equipment.

[1] Copies of American Standard Z79.1-1960 are available from the American Standards Association at 50 cents each.

ASA OFFERS FREEDOM of CHOICE

ASA president tells annual meeting

A REMARKABLE ORGANIZATION whose growth has been through service to the basic ideals of our country—this was the way John R. Townsend, president of the American Standards Association, described the Association in his report to the ASA annual meeting December 8. Perhaps the greatest literature created by America is political in nature, he said. The concept delineated by the Declaration of Independence, the Constitution, and the Bill of Rights is a vital force at work in the world today as millions of Africans and Asiatics strive for political independence and freedom. "I think," he commented, "it is reasonably safe to say that we would have no difficulty in recognizing in the documents of the Republic of the Philippines, Indonesia, South Korea, Liberia, and other nations, our contribution of the revolutionary principle that man is capable of governing himself."

"We have chosen that road which leads mankind to seek the fulfillment of his highest aspirations consonant with individual freedom," Mr Townsend pointed out. "Over the years the American Standards Association and its guiding philosophy have been discussed and debated at great length. It is through ASA that over 1,000 national groups from industry, science, government, and labor essentially govern themselves in standards matters by observing the principles of equal representation by all parties at interest and seeking to obtain a vote of confidence in their ultimate effort—an American Standard.

"No one can be long involved in ASA's administration, management, and policy matters without realizing that ASA is both challenge and stimulus. We know that without modern industrial standardization there would be no flourishing trade associations nor technical societies, for there would be no industry to support or have need of either activity.

"This standardization takes place continuously through the efforts and leadership of men and women like yourselves—both within and without the membership of ASA. But it is your membership in ASA which makes possible this system of checks and balances which we call ASA procedures—a system developed by ASA members and dedicated to rendering impartial service without fee that there may be voluntary national standards supported by national consensus—American Standards; a system wherein the least affluent member of the economy has the privileges and rights of redress equal to the most affluent. This is true if neither group holds ASA membership."

"Herein lies a stumbling block," Mr Townsend pointed out. "On the one hand, ASA renders an essential service. On the other, this service is available to all. Participating groups may or may not support ASA as they see fit. Here, also, we are confronted by freedom of choice which, in turn, involves ethics and moral suasion, if you will. We must sell ASA increasingly, and find new and better ways of telling the ASA story. But, in the final analysis, financial support of ASA comes through an understanding of and belief in the need for an ASA through which industry may govern its own standards affairs in the public interest."

Mr Townsend asked ASA member representatives to consider this problem and discuss it wherever the occasion warrants—at board meetings, national conventions, and regional meetings.

"This," he said, "in order that we may continue to exercise the basic rights and privileges in the manner to which we have accustomed ourselves in standards work—a manner intrinsic to our status as a free people."

The annual meeting and the Standards Council meeting which preceded it brought together representatives of member-bodies and associate members of ASA.

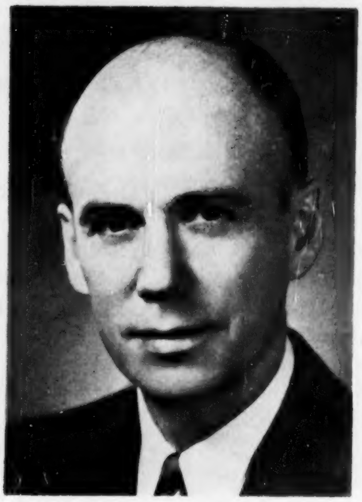
The Council heard reports from the 14 ASA Standards Boards,[1] from the Committee on Procedure, and the Board of Review, showing that 11 new projects had been initiated during the past year, and 345 new or revised standards approved. All the standards boards showed active work in bringing standards up to date, in approval of personnel of sectional committees, in development of new work, and in work on international projects. So much activity has taken place in materials handling during the past year that the Standards Council authorized a new standards board to supervise this work. This action was taken at the December 8 meeting, on recommendation of the Miscellaneous Standards Board which has had responsibility for this work. Seven projects will report to the new Packaging and Materials Handling Standards Board: MH1, Standardization of Pallets; MH2, Metal Drums and Pails; MH3, Motor Oil Cans; MH4, Conveyor Terms and Definitions; MH5, Shipping Cases for Petroleum Containers; MH8, Loading Platforms at Freight Terminals and Warehouses. Already there are 21 American Standards bearing MH desig-

[1] Acoustical; Chemical; Construction; Consumer Goods; Electrical; Graphic; Highway Traffic; Materials and Testing; Mechanical; Mining; Miscellaneous; Nuclear; Photographic; Safety.

nations. Also, Sectional Committee MH1 is participating actively in ISO/TC 51, Pallets for the Unit Load Method of Materials Handling, and Sectional Committee MH5 requested ASA to propose the initiation of a new ISO project on freight containers, which ASA has done. Seven ISO projects will be allocated to the new board: ISO/TC 51, Pallets for the Unit Load Method of Materials Handling; ISO/TC 52, Hermetically Sealed Metal Food Containers; ISO/TC 53, Packages for Frozen Foods; ISO/TC 88, Pictorial Marking of Handling Instructions for Goods; ISO/TC/P 49, Conveyors and Elevators; ISO/TC/P 51, Packaging Dimensions; and the project which ASA has just requested—Freight Containers.

ASA's Officers — 1961

John R. Townsend



Frank H. Roby

Townsend and Roby re-elected—Massey and Mattocks new officers of Standards Council—Four new Board members

JOHN R. TOWNSEND AND FRANK H. ROBY have been re-elected as president and vice-president, respectively, of the American Standards Association for 1961. As of the first of December, Mr Townsend has resigned as special assistant to the Director of Research and Engineering of the Department of Defense but is continuing as consultant, and also as consultant to the director of the National Bureau of Standards. Mr Roby is executive vice-president of the Federal Pacific Electric Company, Newark, N.J.

Harold Massey, managing director, Gas Appliance Manufacturers Association, is the new chairman of the Standards Council, succeeding T.E. Veltfort. *E.O. Mattocks,* director of technical services, American Petroleum Institute, is vice-chairman.

Four new members of the Board of Directors, elected for three years, took office January 1, 1961:

Carl H. Simon, executive vice-president, Darling Valve and Manufacturing Company—nominated by the Manufacturers Standardization Society of the Valve and Fittings Industry

Kenneth A. Cruise, material manager, Kansas City Division, Bendix Aviation Corporation—nominated by the National Association of Purchasing Agents

L. A. Vincent, general manager, National Board of Fire Underwriters—nominated by the National Board of Fire Underwriters

Major General George C. Stewart, USA (Ret), executive vice-president, National Safety Council—nominated by the National Safety Council

Harold Massey

E. O. Mattocks

Philip M. Talbott, also became a member of ASA's Board late in the Fall of 1960. He was elected to complete the unexpired term of M.C.Harrison, a member-at-large. The term expires December 31, 1962. Mr Talbott is special assistant to the chairman and president of the National Savings and Trust Company, Washington, D.C. Although now in banking, Mr Talbott was formerly active in the retailing field. He is past president of the National Retail Merchants Association, and a past president of the Chamber of Commerce of the United States. He is now a member of the Board of Directors of the Chamber.

G. C. Stewart

Carl H. Simon

Arthur S. Johnson

L. A. Vincent

In addition, *Walter G. Wright*, vice-president–operations, General Telephone and Electronics Corporation, has been re-elected, and *Arthur S. Johnson*, vice-president and manager, American Mutual Liability Insurance Company, has been elected as a member-at-large. Mr Wright was nominated by The Telephone Group, and Mr Johnson was nominated by the Board of Directors itself. He had been a member of the Board in an ex-officio capacity as past chairman of the Standards Council.

Mr Cruise has had 25 years of purchasing experience, all at Bendix Aviation Corporation. He was appointed purchasing agent of the newly formed Kansas City Division in April, 1949, and in 1957 was promoted to material manager. He has written many articles on purchasing. Mr Cruise was president of the Purchasing Agents Association of Kansas in 1959-1960 and in May 1960 was appointed chairman of the National Committee on Value Analysis-Standardization. He was chairman of the American Management Association seminar, March 21-23, 1960, on the subject of measuring and appraising purchasing performance.

Mr Simon has been first vice-chairman of the Manufacturers Standardization Society of the Valve and Fittings Industry and chairman of its executive committee for the past five years. Under his leadership the Society has made rapid progress in developing the scope of its activities as well as enlarging its membership. Mr Simon is vice-president of two Canadian subsidiaries of the Darling Company. He is a member of The American Society of Mechanical Engineers, the American Water Works Association, the American Petroleum Institute, the American Management Association, and the American Society for Testing Materials. Mr Simon is active in civic and community affairs in his home city, Williamsport, Pa.

General Stewart served as a commissioned officer of the U.S. Army from the time he was graduated from the U.S. Military Academy in West Point in 1923 until October 1954 when he was retired with the rank of Major General. During World War II he served in North Africa, Europe, and the Philippines. During the Korean War he served with the Second Infantry Division in 1950 and 1951. His last assignment in military service was as director of the Office of Military Assistance in the Office of the Secretary of Defense. He was appointed general manager of the National Safety Council in 1954 and in 1955 was made executive vice-president.

Mr Vincent joined the National Board of Fire Underwriters in 1929 and has been general manager since 1951. From 1940 to 1945 he was in Washington attached to the Office of the Chief of Engineers as consultant to the War Department on fire protection. In addition, he served as secretary of the committee that wrote the Government's Manual on Fire Protection for Civil Defense. In 1947 he was assistant executive director of the President's Conference on Fire Prevention. Mr Vincent is a Fellow of the Casualty Actuarial Society; a member of the Society of American Military Engineers; and a trustee of Underwriters' Laboratories, Inc.

RIGHT: Kenneth A. Cruise

BELOW: Philip M. Talbott

BELOW (RIGHT): Walter G. Wright

Are These Cases Work Injuries?

This is the thirty-fifth installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations. Reprints of each double page of cases published in THE MAGAZINE OF STANDARDS can be obtained in quantity from the American Standards Association at $1.50 per 50 copies.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-800. An index to Cases 400-800 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-800, with the index, are now available from ASA at $2.50. Discounts for quantity orders may be obtained on request.

CASE 810 [5.2 (a)]

An employee who performed inspection operations stooped down to transfer a tray of small parts from the bottom shelf of a cart approximately 6 in. above floor level to a workbench 33 in. above floor level. The total weight of the tray and parts was 16 lb. The woman placed the tray of parts on the workbench, walked down the aisle to a second workbench, came back, and stated to an associate that she had felt a catch in her back when she stooped over to get the tray.

The employee reported to the dispensary, where the plant physician examined her and diagnosed a possible sacroiliac sprain. The woman worked the balance of the day, but the following day after reporting to work she stated she was in pain, and the physician advised her to go home. As a result, she was off work five days during which time she was treated by a chiropractor. The company physician said the same type of sprain could occur if the employee bent over to tie her shoestring, or just raised herself out of a chair.

Decision: This incident should not be considered a work injury, and should not be included in the work injury rates. The committee noted that the employee felt a catch in her back when she stooped over rather than while she was in the act of lifting, and the members did not, therefore, believe the incident meets the requirements of paragraph 5.2 (a).

CASE 811 (5.2)

At about 10:30 A.M., an employee slipped on the wet tile floor of the plant. He did not fall, but he did grab a rail for support. At about 11:00 A.M., the man went to the company dispensary and reported a cold in his back. He did not mention the slipping. Later the same day, while standing on a cart, he reached for and drew another cart toward him, using his right leg. After this incident he felt an added discomfort in his back. That evening, on returning to his home, the man described his condition to his wife, a nurse, who treated him for a cold in his back.

The following day the employee informed the plant supervisor that he was unable to report for work. Later that day he was treated by his family doctor, and other treatments followed on later dates. Between his first day away from work and about two weeks later when he returned to his job, this man mentioned the on-the-job slip and cart incidents to his doctor who believed the sore back resulted from one of these incidents.

When the employee returned to work, he provided the company with the above information. When asked why he had not reported the slipping and cart incidents at the time of their occurrence, he replied that they were so slight he had attached no importance to them, and had thought he had a cold in the back.

The company questioned whether the incidents described could be considered clear records, and asked for an interpretation of "clear record."

Decision: The lost time should be included in the work injury rates on the basis that a specific hour and date were mentioned, indicating a clear record of an incident; and the doctor believed the sore back resulted from the incidents.

CASE 812

No decision rendered. Not to be used as a precedent.

CASE 813 (5.18)

When walking around a pump while checking its operation, a plant shift electrician stepped on a small rock and turned his ankle. That evening after working hours he went to a local doctor who advised him to rest his ankle for a few days. The man failed to report to work the following two days, and attempts to reach him by telephone were to no avail. On the third day it was learned that this man was working at a nearby sawmill. Consultation with him revealed that he believed he could work at the sawmill without taxing his ankle, but could not return to his regular job as it required walking.

The employee was allowed to return to his regular job on the fourth day after the injury.

Decision: In spite of a vague description, the committee assumed that the lo-

cal doctor who treated this case was considered by the employer as the physician authorized to treat the case, and noted that the doctor advised the employee to rest his foot for two or three days. On this basis the turned ankle should be considered a work injury and included in the rates as a temporary total disability in accordance with the number of days this employee was not working at the company's plant.

CASE 814 (5.2)

An employee got into the truck to move a drift tube (size of a football, weighing 40-50 lb) to the rear of the truck. He put himself into a squatting position, and was just starting to move one of the tubes when he felt a sharp pain in his back. He got out of the truck, leaned against a stool, and at this point he fell over into a faint. The medical department was then called. The man returned to work a week later, at which time he said there had been no slip, trip, or fall involved in this incident. He had been working with drift tubes extensively over a year and a half, and had no prior history of trouble with his back. The treating doctor was satisfied the injury could have arisen out of the incident.

Decision: The case should be included in the work injury rates since there was an incident, and since the doctor treating the case said the disability could have arisen out of the incident.

CASE 815 (5.5)

During a period when employees of the Operating Department were on strike, a cadet engineer and a foreman were in a company truck, taking the truck to a crew which was to use some of the material and equipment carried on the truck for a repair job in the field. They were followed by two pickets in an automobile, and while driving along a city street they were cut off by a second automobile. Four unknown men came out of the second automobile and beat and kicked the cadet engineer so severely that he spent several days in a hospital. The four men, while unrecognized by the two supervisors, may or may not have come from another division of the company.

Decision: This case should be included in the work injury rates on the basis that the purposely inflicted injury arose out of and in the course of employment, and was related to a work-connected dispute.

CASE 816 (5.10)

An employee who normally worked in the laboratory was assigned to take a 2½-day fire-fighting training course, the majority of which was conducted outdoors where the employee was exposed to the sun. The day after completing the course, the man reported for medical treatment of his sunburned lips, which he claimed were a result of his exposure.

The company agreed that this man normally would not be exposed to the sun in his laboratory job, but because many of their employees were exposed daily to the same conditions he had experienced and were not affected by the sun, the company felt this injury should not be classified as industrial.

Decision: If the employee did not lose one complete shift, then this would be a medical treatment case and would not be included in the rates. If the employee's sunburn did cause him to lose a complete work shift, then the injury should be included in the rates since the sunburn occurred in the course of employment and arose out of a hazard of the environment in which the work was performed. The fact that other employees exposed to the same conditions experienced no ill effects is no reason for not counting the case.

CASE 817 [5.2 (b)]

An employee was feeding body blanks into the feed hopper in the assembly department. He reached to the table containing body blanks for a handful of blanks. As he turned his body back to place the blanks in the feed hopper, he experienced a sharp pain in his back. The pain was so severe and so sudden that he stopped movement of his body with his arms upraised, and the body blanks still in his hands. He screamed in pain, at which moment the personnel supervisor, who was 6 ft from where the man was standing, removed the plates from his hands and with several other men steadied him until he could move sufficiently to get into the dispensary. An ambulance took the employee to the hospital, where he was examined by the plant physician who referred him to a neurosurgeon for extensive examination and treatment.

The neurosurgeon's impression, based on the employee's complaints, history of the incident, and physical findings, was "herniated intervertebral disc, L-5 left." His recommendations of x-rays of the lumbosacral spine and continuation of bed rest and pelvic traction were carried out during the man's hospital stay of 11 days. Nine days after the experience the plant physician examined the employee, and his diagnosis was "subsiding herniated intervertebral disc L-5 left." The following day a plaster body jacket was applied, and the next day the man was discharged from the hospital and referred to the plant physician's office for follow-up care.

The plant physician and the neurosurgeon both assured the company that occurrences of this type were extremely common, and they believed no clear incident contributed to this condition.

Decision: This back injury should not be included in the work injury rates since the doctors who treated the employee stated that no clear incident contributed to the condition.

CASE 818 (5.12.2)

A public utility employee was checking an insulating union for tightness on an outside regulator installation to be entered in a new home, when a sudden stroke of lightning struck somewhere nearby. The concussion from the lightning had enough force to hurl the man about 8 ft, causing him to become unconscious. He regained consciousness within approximately 4 minutes and had no further effects from this incident other than a state of shock which caused him to lose about one week's time from work.

The company questioned whether this incident should be included in its rates because, following the stroke of lightning, rain occurred which developed into a heavy downpour. There was no rain prior to the incident itself, and the company did not require regular employees to do their work outdoors in rainy or inclement weather; therefore, had there been any rain prior to the incident, this employee would not have been performing that particular work.

Decision: The incident described should be considered a work injury and included in the rates in accordance with the ultimate extent of disability because it arose out of and in the course of employment. Even though there was no rain preceding the lightning to warn the employee of the approaching storm, the committee felt that the nature of the employee's work subjected him to a greater than normal exposure to the lightning hazard.

CASE 819 (5.7)

A lineman, working on a routine line extension, was removing a guy protector from a down guy when a wasp stung him on his neck and left thumb. There was no indication that a wasps' nest was in the vicinity, and none could be found under the guy protector. The man continued to work for the rest of the day.

The following day he called to say that his hand was severely swollen and he would like to see a doctor. He was sent to a doctor who instructed him to bathe his hand every hour until the swelling subsided. The employee was absent from work for three days as a result of the swelling of his hand from the wasp sting.

Decision: This injury should be included in the work injury rates on the basis that it arose out of and in the course of employment. Insects are a part of outdoor environment, and outdoor workers are exposed to them.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently recevied from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies, please refer to the number following the title.

332.1 BANKING

France (AFNOR)

Conventional abbreviations for principal banking establishments NF K 10-12

Norway (NSF)

Securities. Share certificates and coupon sheets NS 897
Securities. Bond certificates and coupon sheets NS 898

621.3 ELECTRICAL ENGINEERING

Argentina (IRAM)

Automatic starting fluorescent lamps with preheated electrodes IRAM 2124
Polyphase induction motor. Method of test IRAM 2125
Fractional horse-power motors. Dimensions IRAM 2126
Porcelain insulators for power lines up to 1000 v IRAM 2133

Australia (SAA)

SAA approval and test specifications for electric blankets C.164-1960

Austria (ONORM)

Resistors for telecommunication, wire-wound ÖNORM E 3040
Copper bare wire, flat, rounded edges ÖNORM E 3700
Insulated round copper wire, special test of ÖNORM E 3803
Metal crossbars for overhead lines ÖNORM E 4353
2 stds for roof supports of overhead lines ÖNORM E 4359/60
Types of embossed letters and symbols for transformers ÖNORM E 4767
Lead and lead alloys for cable sheathing ÖNORM E 7490

Canada (CSA)

Construction and test of service-entrance branch-circuit breakers C22.2 No. 5-1960
Construction and test of mineral-insulated copper-sheathed cables C22.2 No. 124-1960
Construction and test of portable electric lighting devices C22.2 No. 12-1960
Construction and test of all-asbestos, asbestos-varnished-cloth, and asbestos-thermoplastic insulated wires and cables C22.2 No. 28-1960
Construction and test of flexible cords and fixture wires C22.2 No. 49-1960
Construction and test of varnished-cloth insulated wires and cables C22.2 No. 78-1960

Czechoslovakia (CSN)

Rules for installation of electrical apparatus and appliances CSN 34 1030
Electrical equipment for machine tools CSN 34 1630
Service instructions for asynchronous motors CSN 34 3230
Electrical heating pads CSN 36 1430
6 stds for different porcelain- and plastic-insulated bushings CSN 37 0170/2, 0174/5, 0178
Cable channels and supports CSN 38 2156

Egypt (EOS)

Hard-drawn copper conductors for overhead lines EOS/S 11
Electric batteries for motor cars EOS/S 21

France (AFNOR)

Switches, buttons, circuit breakers up to 10 amperes NF C 61-110
Circuit breakers for installation on switchboards NF C 62-401
Electrotechnical vocabulary, Group 40: Electrothermics NF C 01-040

Germany (DNA)

Flexible cord, plastic insulated DIN 47411
HF cable and conductors, symmetric, unscreened DIN 47261
House inlet connecting boxes for overhead lines DIN 43637
Terminal with insulated nut for measuring instruments DIN 43806
5 stds for cable terminal boxes and accessories up to 10 kv DIN 47681
Lugs, soldering, for copper wire DIN 46212
Ferritic U-core, low magnetic DIN 41296
Ferritic yoke ring, low magnetic DIN 41297
3 stds for gages for bases of miniature electronic tubes DIN 41557/4,-558/3, -559/4
Inlet tube for moisture-proof cable inlet DIN 22419
Alternating-current units DIN 40110
Flanged electric motors, accuracy of mounting DIN 42955
Sewing machine electric motors DIN 42691
Transformer bushing, indoor and outdoor DIN 42532
Cable lug sockets DIN 46208
Velocity-modulated electronic tube DIN 44400

Hungary (MSZH)

10 stds for plastic-insulated copper and aluminum wires and cables up to 750 v MSZ 1166/7, 1171/8
Plastic- or paper-insulated cables up to 1000 v MSZ 2845

India (ISI)

Insulators, pins, hooks, brackets, etc, for telegraph and telephone lines IS:1441-1960
Covered electrodes for metal arc-welding of high-tensile structural steel IS:1442-1959
Porcelain insulators for overhead lines below 1000 v IS:1445-1959
Recommendations for minimum performance requirements of mains-operated public address amplifiers IS:1490-1959
Transformers used in vibrator power supplies IS:1496-1959
Test and general requirements for I. F. transformers and R. F. coils used in AM broadcast receivers IS:1512-1959

Mexico (DGN)

Copper wire of special cross section for trolley lines B-100-1959

Netherlands (NNI)

Rules for rotating electrical machinery NEN 3173 (1960)

Norway (NSF)

Graphical symbols for electrical engineering NS 742
Graphical symbols for telecommunication NS 743
2 stds for fuses, hand-operated, up to 500 v, with spring and screw contacts NS 882/3

Switzerland (SNV)

Tubes, insulated armored conduits with longitudinal lock joint SNV 24720
2 stds for steel sheet flexible conduits for electric wiring SNV 24721/2
2 stds for rigid and flexible plastic conduits for electric wiring SNV 24737/8
Rigid steel conduits, galvanized or varnished with or without insulation layer SNV 24730

Union of South Africa (SABS)

Paper-insulated electric cables for general purposes SABS 97-1959

United Kingdom (BSI)

Dimensions of three-phase electric motors. Totally enclosed fan-cooled motors BS 2960:Part 2:1960
Non-reversible connectors and appliance inlets for portable electrical appliances BS 3283:1960
Caps and lampholders for double-capped tubular lamps BS 495:1960
Concrete poles for electrical transmission and traction systems BS 607:1960
Oil circuit breakers for medium-voltage a-c systems BS 936:1960
Fixed wire-wound resistors for use in telecommunication and allied electronic equipment BS 2111:Part 1:1960

Rotating electrical machines for use on road and rail vehicles BS 173:1960
Glossary of terms used in telecommunication (including radio) and electronics BS 204:1960
Phenolic-resin-bonded asbestos-paper sheets for electrical insulation at power frequencies BS 3253:1960
Presspaper for electrical purposes BS 3255:1960
Silicon-rubber-insulated cables and flexible cords BS 3258:1960

USSR

Cut-off switches from 100 to 600 amp, up to 500 v GOST 2327-60
Direct-current small electric motors for automobiles and tractors GOST 9443-60
Electrical measuring instruments. Stretchers and suspenders GOST 9444-60
Fixed capacitors. Series of rated capacities GOST 2519-60
Spigot-mounted magnetos for automobiles and tractors GOST 2829-60
Composite variable resistors (potentiometers) SP GOST 5574-60
Alternating current meters GOST 6570-60
Ohmmeters. Technical requirements GOST 8038-60
3-phase asynchronous electric motors from 100 to 1000 kw GOST 9435-60
Micanite for insulating gaskets GOST 6121-60
Pressed and hot formed micanite GOST 6122-60
Alternating-current measuring bridges GOST 9486-60

621.56/.59 REFRIGERATION TECHNOLOGY

France (AFNOR)

Trays for frozen food products in household refrigerators NF E 35-303

India (ISI)

Domestic refrigerators, mechanically operated IS:1476-1959

Norway (NSF)

2 stds for household refrigerators. Calculation of storage volume and shelf area, and test rules NS 547/8

Switzerland (SNV)

Refrigeration installations. Service and maintenance SNV 53180

621.6 FLUID DISTRIBUTION, STORAGE, CONTAINERS. PIPES. PUMPS

Czechoslovakia (CSN)

3 stds for one- and two-stage centrifugal pumps. Basic data CSN 11 3900, 3025/6
Centrifugal sectional pumps up to 19 atmospheres. Basic data CSN 11 4400

France (AFNOR)

3 stds for cast iron pipes and fittings series "SA" NF A 48-701/3

Mexico (DGN)

Seamless steel pipes for low-pressure boilers B-95-1958
Seamless steel pipes for high-pressure boilers B-96-1958

Netherlands (NNI)

Pipe lines for the transportation of milk NEN 1714(1960)
Steel threaded tubes and sockets NEN 3257(1960)

Norway (NSF)

6 provisory stds for plastic tubes NS 920M-925M
14 stds for schematic survey of cast iron pipes and fittings, modular dimensions, graphical symbols NS 938-951

Switzerland (SNV)

2 stds for cast iron flanges, nominal pressure 64 and 100 SNV 18425/6
4 stds for cast steel flanges, nominal pressure 64 and 100 SNV 18435/6

United Kingdom (BSI)

Small fusion-welded steel air receivers BS 1099:1960
Fusion-welded steel air receivers BS 487:Part 1:1960
Pressure regulators for use with butane/propane gases BS 3016:Part 3:1960
Small fusion-welded air reservoirs for road and railway vehicles BS 3256:1960

Uruguay (UNIT)

Steel pipe, plain or galvanized, seamless or welded UNIT 134-59
Polyethylene pipes UNIT 137-59

661 CHEMICALS

Pakistan (PSI)

Liquid chlorine PS:16-1958*
Nitric acid PS:34-1958*
Sulfuric acid for use in secondary batteries PS:35-1958*
Soda ash PS:10-1958*
Caustic soda (solid and liquid) PS:11-1958*

* Available in English

USSR

Chlorbenzene, technical GOST 646-60

77 PHOTOGRAPHY AND CINEMATOGRAPHY

Austria (ÖNORM)

Slide frames ÖNORM O 1500

Czechoslovakia (CSN)

Brightness of cinema projection screen CSN 19 8020

United Kingdom (BSI)

Sizes of sensitized photographic plates BS 1406:1960
8-mm projector spools BS 2013:1960
16-mm projector spools BS 2014:1960

USSR

8- and 16-mm motion picture films with magnetic sound record. Width and location of magnetic tracks and reproducing heads GOST 9492-60

• NEWS BRIEFS

• A NEW international project on freight containers has been proposed to the International Organization for Standardization by the American Standards Association, the U.S. member-body of ISO.

ASA acted with the strong backing of the U.S. industry represented in Sectional Committee MH5, Standardization of Freight Containers, and has indicated that it is technically and financially equipped to assume the secretariat. The scope proposed by ASA covers "standardization of an integrated series of freight containers for universal interchange between marine, railroad, air, and highway transportation carriers." The work would include terminology and definitions, specifications for performance, dimensions and tolerances, methods of measuring, methods of handling and securing, and marking of containers.

• THE BUREAU OF SHIPS has signed a contract with the American Standards Association, effective 1 November 1960 for the preparation of lists of industry specifications and standards which are the equivalent of military documents. This work is being done as a part of the Bureau's effort in reducing shipbuilding costs. The work will supplement and accelerate the Bureau liaison with non-government technical and professional societies and associations which in the past has led to the adoption of many industrial standards for Naval use.

W. L. Healy of Drexel Hill, Pennsylvania, has been appointed staff engineer to work exclusively on this assignment. Mr Healy may be reached through the Standardization Assurance Engineering Branch of the Bureau of Ships.

Mr Healy was formerly employed by the General Electric Company, which he joined in 1919 in Schenectady. Later, he was transferred to the Baltimore plant in charge of drafting and design and since has held several supervisory positions in engineering and design. At the time of his retirement on 1 November in accordance with company policy, he held the position of specialist in the switchgear and control division, Philadelphia.

Born in Paterson, New Jersey, Mr Healy began his career as a teacher and then went into industry after graduating in electrical engineering from Drexel Institute of Technology. He is co-author of the book *Simplified Drafting Practice*, and has lectured extensively in this country and Canada on the subjects of simplified drafting, value analysis, and creative thinking.

W. L. Healy

Mr Healy is a member of the American Institute of Electrical Engineers, The American Society of Mechanical Engineers, and the American Society for Engineering Education. He is past national president and a Fellow of the Standards Engineers Society. He has also been active in the ASA, serving as a member of the editing committee of Sectional Committee Y14, concerned with writing a new set of national drafting standards.

• RECENTLY, U.S. GROUPS have felt the need for greater participation in the working group activities of ISO Technical Committee 17, Steel. To put into effect its comparatively new participating membership in ISO/TC 17, U.S. industry has also decided to take part in all working groups of the technical committee and has notified the secretariat of each working group accordingly. Committee A-1 on Steel of the American Society for Testing Materials holds the responsibility for U.S. participation in ISO/TC 17.

• THE CANADIAN STANDARDS Association defines the fundamental characteristics of standardization (*CSA News*, September 1960) as follows:

"Standards must remain a voluntary, self-regulatory responsibility of private enterprise. The citizens of the country who are its producers, consumers, and distributors are the best regulators of their own interests. They are, moreover, more willing to follow regulations which they set up themselves.

"Standards must be developed on a 'mutual accord' basis—acceptable alike to both producer and consumer.

"Standardization must be practiced on the basis of minimum requirements consistent with sound industrial practice.

"Standards must remain flexible. They must not become limitations or restrictive procedures which industry must follow by compulsion. They must permit a broad scope for individualism in the matter of design and for the production of a superior quality if desired or demanded.

"Standards work effectively only when they are observed on a national scale. There is a continuing and growing need, therefore, for a comprehensive, integrated set of national standards."

• W. G. WALTERMIRE, chief product engineer, The Lamson & Sessions Company, Cleveland, now represents the American Society of Mechanical Engineers on the Standards Council of the American Standards Association. Mr Waltermire was the "Personality of the Month" in the June 1960 issue of THE MAGAZINE OF STANDARDS.

W. G. Waltermire

ASME is also represented by Professor Z. R. Bliss, Brown University, Providence, R.I., and W. P. Kliment, Crane Company, Chicago, Ill.

• MISS A. JUNE BRICKER has succeeded Miss Mildred Horton as executive secretary of the American Home Economics Association. The Association has been affiliated with the Ameri-

Obituaries

• HENRY B. DUFFUS, one of the hardest working men in the field of safety standards, according to his colleagues on the Safety Standards Board, died November 23. He had been ill during the summer but not too ill to attend the meeting of the National Safety Congress in October.

Mr Duffus became active in ASA work as chairman of the War Committee on Protective Occupational Clothing, L18. Following the war he became chairman of the important and active Sectional Committee on Methods of Compiling and Recording Accident Statistics, Z16. At the time of his death he was chairman of this committee and also of Sectional Committee B11, Safety Code for Power Presses and Foot and Hand Presses.

He was also a member of ASA's Safety Standards Board, having served both as vice-chairman and as chairman.

Mr Duffus was accident prevention administrator for the Westinghouse Electric Corporation, coordinating corporation policies and procedures as they relate to the prevention of accidents. He served as a consultant in accident prevention to Westinghouse operating personnel and safety supervisors at 98 locations throughout the United States.

Mr Duffus was active in both the American Society of Safety Engineers and in the National Safety Council. He served as president of the Society for one year, and as a member of the Council's Board of Directors and Industrial Conference Executive Committee. He was past chairman of the Council's Automotive and Machine Shop Section and the Electrical Equipment Section.

Having started his work on safety in 1927, Mr Duffus was a member of the "Veterans of Safety."

• THEODORE IRVING COE, architect and leader in the building industry, died November 12 at the age of 88. A Fellow of the American Institute of Architects, Mr Coe for many years was technical secretary of AIA. Recognized as a leader in his profession, he represented the architects in the construction of the U.S. Supreme Court Building. He was one of the pioneers in the work on modular measure and is credited with having brought about the joint action of AIA and the Producers' Council in setting up an office to implement the work of Sectional Committee A62. This joint office has now been expanded and reorganized to form the Modular Service Building Association. For many years Mr Coe was an active member of ASA's Construction Standards Board, having served both as vice-chairman and as chairman.

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can Standards Association as a member-body since 1943, and has been represented in ASA's work on consumer goods since the early 1930's.

Miss Bricker had formerly been director of the Field and Community Health Bureau of the Metropolitan Life Insurance Company.

In addition to her membership in AHEA, Miss Bricker is active as a member of the American Dietetic Association, particularly in nutrition, rehabilitation, and communications.

At a retirement dinner in her honor, Miss Horton was given credit for "brilliant service in strengthening and advancing the profession of home economics, in establishing the permanent headquarters of the Association, in helping the Association achieve national standing, and in assuming international leadership in economics."

"Probably no year has surpassed this one in terms of progress in standards of benefit to consumers," Mrs Lucille Williamson told the American Home Economics Association in her 1960 report. Mrs Williamson represents AHEA on ASA's Standards Council and Consumer Standards Board. In August 1960 she retired from the faculty of the New York State College of Home Economics at Cornell University, after 28 years. Now a professor emeritus, she will continue to make her home in Ithaca.

"Work is under way on standards for small electrical appliances, incandescent lamps, petroleum products, photographic film, and for many other standards that will make for easier identification of products as well as better ones," Mrs Williamson pointed out in her report.

"To the home economist, the supreme achievement is the completion and acceptance after ten years of hard work on American Standard L22, Performance Requirements of Textile Fabrics," Mrs Williamson said. "The L22 standard is remarkable in its breadth, in the support it has had from the various segments of the textile industry, in the fact that it is voluntary and that it concerns performance rather than fiber content."

• THE NATIONAL standards bodies of France, Italy, USA, and Yugoslavia have been elected members of the Council of the International Organization for Standardization for three years. In addition, the members of the Council for 1961 will consist of the national standards bodies of Austria, Germany, Israel, Netherlands, Norway, Poland, Romania, Switzerland, United Kingdom, and USSR. The American Standards Association is the U.S. member of the ISO.

. . . *Questions*

We would like to be sure that the construction and maintenance of our schools meet the requirements of American Standards. Please advise which standards apply.

There are no construction or maintenance standards directed specifically to schools. However, American Standards in the civil engineering and construction fields cover many school problems. These are listed in the price list and index to American Standards. It is noted particularly that American Standard A58.1-1955, for example, specifies that uniformly distributed life loads should be 40 pounds per square foot for school classrooms and 100 pounds per square foot for school corridors.

At a company level, what departments should be represented on a committee organized to draw up a set of drafting standards for the company?

All departments actively engaged in the preparation of engineering drawings should be represented on a committee assigned the responsibility to develop and approve company drafting standards. Organizational structure of a company may influence the selection of representatives on the committee. In some companies the selection of representatives could be from a limited number of engineering activities. Companies operating on the services of one engineering department may select a committee composed of employees responsible for the preparation of engineering drawings in accordance with company policy and objectives.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

BUILDING AND CONSTRUCTION

Reinforced Masonry, Building Code Requirements for, A41.2-1960 $0.15
Requirements on design and construction of reinforced masonry structures for use by engineers and builders, and in building codes.
Sponsor: National Bureau of Standards

ELECTRIC AND ELECTRONIC

Interrupting Rating Factors for Reclosing Service on Power Circuit Breakers, C37.7-1960 (Revision of C37.7-1952) $0.40
Interrupting rating factors for all power circuit breakers rated 69 kv and above (regardless of continuous current rating), and for those rated below 69 kv, having continuous current ratings below 2,000 amp.
Sponsor: Electrical Standards Board

GAS-BURNING APPLIANCES

Approval Requirements for Gas Water Heaters, Volume III, Circulating Tank, Instantaneous and Large Automatic Storage Type Water Heaters, Z21.10.3-1960 $2.00

Addenda Z21.27a-1960 to American Standard Approval Requirements for Hotel and Restaurant Gas Deep Fat Fryers, Z21.27-1959 $0.25
Sponsor: American Gas Association

MECHANICAL

Ball and Roller Bearings and Their Parts, Terminology and Definition, B3.7-1960 $2.00
Definitions of terms for all types of ball and roller bearings and their parts; including 71 figures illustrating parts to which the terms apply.

Metal Balls, Specifications for, B3.12-1960 $1.80
Covers finished metal balls for antifriction bearings; including terminology, and requirements and acceptance provisions classified by material.
Sponsor: Anti-Friction Bearing Manufacturers Association

MINING

Rock-Dusting Underground Bituminous-Coal and Lignite Mines to Prevent Coal Dust Explosions, M13.1-1960 (Revision of M13-1925) $0.50
Defines terms used in coal and lignite mining. Recommended practices for the use of rock dust include application of dry and wetted rock dust and recommendations for sampling and inspection. An appendix contains a suggested laboratory test for caking tendency of rock dust.
Sponsor: Bureau of Mines

PIPE AND FITTINGS

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses, Specifications for, ASTM A 120-57T; ASA B36.20-1960 (Revision of ASTM A 120-54; ASA B36.20-1958) $0.30
Covers black and hot-dipped galvanized welded and seamless steel pipe for ordinary uses in steam, water, gas, and air lines, but not for close coiling or bending or for high-temperature service.
Sponsor: American Society for Testing Materials

REFRIGERATION

Number Designation of Refrigerants, B79.1-1960 $0.50
Establishes a simple means of referring to common refrigerants instead of using the chemical name, formula, or trade name. Provides a uniform system to be used in assigning the proper reference number.
Sponsor: American Society of Heating, Refrigerating and Air-Conditioning Engineers

SAFETY

Practice for the Inspection of Elevators (Inspectors' Manual), A17.2-1960 (Revision of A17.2-1945) $2.75
A guide for elevator inspectors, including specifications and requirements for initial inspections, routine re-inspections, and inspections of escalators. Appendixes contain information on construction of wire rope, various types of undercar safeties and governors, and on the handling and socketing of wire ropes for elevators.
Sponsors: American Society of Mechanical Engineers; American Institute of Architects; National Bureau of Standards

In Process . . .

As of December 19, 1960

ACOUSTICS, VIBRATION, AND MECHANICAL SHOCK

In Standards Board

General-Purpose Sound Level Meters, Specifications for, S1.4- (Revision of Z24.3-1944)
Sponsor: Acoustical Society of America

BUILDING AND CONSTRUCTION

In Board of Review

Gypsum Plasters, Specification for, ASTM C 28-60; ASA A49.3- (Revision of ASTM C 28-59; ASA A49.3-1959)
Sponsor: American Society for Testing Materials

Gypsum Wallboard, Specification for, ASTM C 36-60; ASA A69.1- (Revision of ASTM C 36-58; ASA A69.1-1959)
Sponsor: American Society for Testing Materials

Gypsum and Gypsum Products, Methods of, ASTM C 26-60; ASA A70.1- (Revision of ASTM C 26-59; ASA A70.1-1959)
Sponsor: American Society for Testing Materials

Sampling and Testing of Brick, Methods of, ASTM C 67-60; ASA A82.1- (Revision of ASTM C 67-57; ASA A82.1-1958)
Sponsor: American Society for Testing Materials

Sampling and Testing Structural Clay Tile, Methods of, ASTM C 112-60; ASA A83.1- (Revision of ASTM C 112-52; ASA A83.1-1953)
Sponsor: American Society for Testing Materials

Facing Brick (Solid Masonry Units Made from Clay or Shale), Specification for, ASTM C 216-60; ASA A99.1- (Revision of ASTM C 216-57; ASA A99.1-1958)
Sponsor: American Society for Testing Materials

Evaluating the Properties of Wood-Base, Fiber- and Particle-Panel Materials, Methods of Test for, ASTM D 1037-60T; ASA O8.1- (Revision of ASTM D 1037-56T; ASA O8.1-1958)
Sponsor: American Society for Testing Materials

In Standards Board

Fireclay-Base Castable Refractories for Boiler Furnaces and Incinerators, Specification for, ASTM C 213-58; ASA A111.34- (Revision of ASTM C 213-55; ASA A111.34-1955)
Sponsor: American Society for Testing Materials

ELECTRIC AND ELECTRONIC

American Standards Approved

Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for, ASTM B 8-60; ASA C7.8-1960 (Revision of ASTM B 8-56; ASA C7.8-1957)

Hard-Drawn Aluminum Wire for Electrical Purposes, Specifications for, ASTM B 230-60; ASA C7.20-1960 (Revision

of ASTM B 230-55T; ASA C7.20-1956)

Concentric-Lay-Stranded Aluminum Conductors, Hard, Three-Quarter Hard, and Half-Hard, Specifications for, ASTM B 231-60; ASA C7.21-1960 (Revision of ASTM B 231-58; ASA C7.21-1959)

Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR), Specifications for, ASTM B 232-60; ASA C7.22-1960 (Revision of ASTM B 232-58T; ASA C7.22-1959)

Rolled Aluminum Rods (EC Grade) for Electrical Purposes, Specifications for, ASTM B 233-60; ASA C7.23-1960 (Revision of ASTM B 233-55; ASA C7.23-1957)

Resistivity of Electrical Conductor Materials, Method of Test for, ASTM B 193-60; ASA C7.24-1960 (Revision of ASTM B 193-1958; ASA C7.24-1959)

Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR), Specifications for, ASTM B 245-60; ASA C7.28-1960 (Revision of ASTM B 245-58; ASA C7.28-1959)

Zinc-Coated (Galvanized) Steel Core Wire (with Coatings Heavier than Standard Weight) for Aluminum Conductors, Steel Reinforced (ACSR), Specifications for, ASTM B 261-60; ASA C7.34-1960 (Revision of ASTM B 261-58; ASA C7.34-1959)

Silver-Coated Soft or Annealed Copper Wire, Specifications for, ASTM B 298-60; ASA C7.38-1960 (Revision of ASTM B 298-56T; ASA C7.38-1957)

Copper Conductors for Use in Hookup Wire for Electronic Equipment, Specifications for, ASTM B 386-60; ASA C7.39-1960 (Revision of ASTM B 386-57T; ASA C7.39-1958)

Aluminum Wire for Communication Cable, Specifications for, ASTM B 314-60; ASA C7.40-1960 (Revision of ASTM B 314-57T; ASA C7.40-1958)

Stiffness of Bare Soft Square and Rectangular Copper Wire for Magnet Wire Fabrication, Method of Test for, ASTM B 279-60; ASA C7.41-1960

Half-Hard Aluminum Wire for Electrical Purposes, Specification for, ASTM B 323-60; ASA C7.42-1960

Rectangular and Square Bare Aluminum Wire for Electrical Conductors, Specification for, ASTM B 324-60; ASA C7.43-1960

Sponsor: American Society for Testing Materials

In Board of Review

Requirements and Terminology for Specialty Transformers, Including Cold-Cathode Lighting Transformers, C89.1- (Revision of C89.1-1957)

Sponsor: National Electrical Manufacturers Association

In Standards Board

Outlet Receptacles, Attachment Plug Caps and Appliance Plugs, C73.1- (Revision of C73.1-1957 and supplement C73.la-1959)

Sponsor: National Electrical Manufacturers Association

American Standards Reaffirmed

Medium-Hard-Drawn Copper Wire, Specification for, ASTM B 2-52; ASA C7.3-1953 (R1960)

Hot-Rolled Copper Rods for Electrical Purposes, Specification for, ASTM B 49-52; ASA C7.7-1953 (R1960)

Sponsor: American Society for Testing Materials

American Standards Withdrawn

Straight and Offset Resistance-Welding Electrodes and Electrode Holders, C52.3-1945

Controls for Resistance-Welding Machines, C52.4-1945

Resistance-Welding Machines, Specifications for, C52.5-1945

GAS-BURNING APPLIANCES

American Standard Approved

Addenda Z21.18a-1960 to American Standard Listing Requirements for Domestic Gas Appliance Pressure Regulators, Z21.18-1956

Sponsor: American Gas Association

HIGHWAY TRAFFIC

American Standards Approved

Method of Recording and Measuring Motor Vehicle Fleet Accident Experience, D15.1-1960

Method of Recording and Measuring Motor Vehicle Fleet and Passenger Accident Experience, D15.2-1960

Sponsors: National Safety Council; American Trucking Associations

In Standards Board

Manual on Uniform Traffic Control Devices for Streets and Highways, D6.1- (Revision of D6.1-1955)

Sponsors: National Joint Committee on Uniform Traffic Control Devices; American Association of State Highway Officials; Institute of Traffic Engineers; National Committee on Uniform Traffic Laws and Ordinances; National Association of County Officials; American Municipal Association

MECHANICAL

In Standards Board

Deep-Well Vertical Turbine Pumps, Specifications for, B58.1- (Revision of B58.1-1955)

Sponsor: American Water Works Association

MISCELLANEOUS

Reaffirmation Being Considered

Rules for Rounding Off Decimal Values, Z25.1-1940 (R1947)

PETROLEUM PRODUCTS AND LUBRICANTS

American Standards Approved

Cone Penetration of Lubricating Grease, Test for, ASTM D 217-60; ASA Z11.3-1960 (Revision of ASTM D 217-52T; ASA Z11.3-1952)

Water and Sediment in Crude Oils by Centrifuge, Method of Test for, ASTM D 96-60; ASA Z11.8-1960 (Revision of ASTM D 96-59T; ASA Z11.8-1960)

Melting Point of Petrolatum and Microcrystalline Wax, Method of Test for, ASTM D 127-60; ASA Z11.22-1960 (Revision of ASTM D 127-49; ASA Z11.22-1949)

Knock Characteristics of Motor Fuels Below 100 Octane Number by the Motor Method, Method of Test for, ASTM D 357-60; ASA Z11.37-1960 (Revision of ASTM D 357-59; ASA Z11.37-1960)

Unsulfonated Residue of Petroleum Plant Spray Oils, Method of Test for, ASTM D 483-60T; ASA Z11.41-1960 (Revision of ASTM D 483-52T; ASA Z11.41-1952)

Congealing Point of Petrolatum and Petroleum Waxes, Method of Test for, ASTM D 938-60; ASA Z11.61-1960 (Revision of ASTM D 938-49; ASA Z11.61-1949)

Knock Characteristics of Motor Fuels Below 100 Octane Number by the Research Method, Method of Test for, ASTM D 908-60; ASA Z11.69-1960 (Revision of ASTM D 908-59; ASA Z11.69-1960)

Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates, Method of Test for, ASTM D 1019-60T; ASA Z11.71-1960 (Revision of ASTM D 1019-58T; ASA Z11.71-1958)

Rust Preventing Characteristics of Steam-Turbine Oil in the Presence of Water, Test for, ASTM D 665-60; ASA Z11. 85-1960 (Revision of ASTM D 665-54; ASA Z11.85-1955)

Kinematic Viscosity, Method of Test for, ASTM D 445-60; ASA Z11.107-1960

Sulfur in Petroleum Products and LP-Gas (Lamp Method), Method of Test for, ASTM D 1266-59T; ASA Z11.108-1960

Measuring Color of Petroleum Products, Method of Test for, ASTM D 1500-58T; ASA Z11.109-1960

Sponsor: American Society for Testing Materials

American Standards Reaffirmed

Distillation of Natural Gasoline, Method of Test for, ASTM D 216-54; ASA Z11.11-1955 (R1960)

Burning Quality of Kerosine, Method of Test for, ASTM D 187-49; ASA Z11.-17-1949 (R1960)

Burning Quality of Mineral Seal Oil, Method of Test for, ASTM D 239-30; ASA Z11.18-1930 (R1960)

Burning Quality for Long-Time Burning Oil for Railway Use, Method of Test for, ASTM D 219-36; ASA Z11.19-1936 (R1960)

Precipitation Number of Lubricating Oils, Method of Test for, ASTM D 91-52; ASA Z11.30-1952 (R1960)

API Gravity of Petroleum and its Products (Hydrometer Method), Method of Test for, ASTM D 287-55; ASA Z11.-31-1955 (R1960)

Distillation of Crude Petroleum, Method of Test for, ASTM D 285-54T; ASA Z11.32-1955 (R1960)

Saybolt Color of Refined Petroleum Products (Saybolt Chromometer Meth-

od), Method of Test for, ASTM D 156-53T; ASA Z11.35-1953 (R1960)

Viscosity-Temperature Charts for Liquid Petroleum Products, ASTM D 341-43; ASA Z11.39-1943 (R1960)

Stoddard Solvent, Specifications for, ASTM D 484-52; ASA Z11.42-1952 (R1960)

Calculating Viscosity Index, Method for, ASTM D 567-53; ASA Z11.45-1953 (R1960)

Method for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, ASTM D 446-53; ASA Z11.46-1953 (R1960)

Carbonizable Substances in White Mineral Oil (Liquid Petrolatum), Method of Test for, ASTM D 565-45; ASA Z11.49-1945 (R1960)

Carbonizable Substances in Paraffin Wax, Method of Test for, ASTM D 612-45; ASA Z11.50-1945 (R1960)

Chemical Analysis for Metals in Lubricating Oils, Methods of, ASTM D 811-48; ASA Z11.56-1949 (R1960)

Density and Specific Gravity of Hydrocarbon Liquids by Lipkin Bicapillary Pycnometer, Method of Test for, ASTM D 941-55; ASA Z11.62-1955 (R1960)

Oxidation Stability of Gasoline (Induction Period Method), Method of Test for, ASTM D 525-55; ASA Z11.63-1955 (R1960)

Interfacial Tension of Oil Against Water by the Ring Method, Test for, ASTM D 971-50; ASA Z11.64-1950 (R1960)

Saponification Number of Petroleum Products (Potentiometric Titration Method), Method of Test for, ASTM D 939-54; ASA Z11.67-1955 (R1960)

Oxidation Stability of Lubricating Greases by the Oxygen Bomb Method, Test for, ASTM D 942-50; ASA Z11.65-1950 (R1960)

Benzene and Toluene by Ultraviolet Spectro-Photometry, Method of Test for, ASTM D 1017-51; ASA Z11.70-1951 (R1960)

Sodium in Lubricating Oils and Lubricating Oil Additives, Method of Test for, ASTM D 1026-51; ASA Z11.73-1951 (R1960)

Separation of Residue from Butadiene, Method of Test for, ASTM D 1023-52; ASA Z11.75-1952 (R1960)

Nonvolatile Residue of Polymerization Grade Butadiene, Method of Test for, ASTM D 1025-52; ASA Z11.76-1952 (R1960)

Acidity of Residue from Distillation of Gasoline and of Petroleum Solvents, Method of Test for, ASTM D 1093-52; ASA Z11.77-1952 (R1960)

Boiling Point Range of Polymerization Grade Butadiene, Method of Test for, ASTM D 1088-53; ASA Z11.80-1953 (R1960)

Specific Gravity of Petroleum and its Products (Hydrometer Method), Method of Test for, ASTM D 1298-55; ASA Z11.84-1955 (R1960)

Aromatic Hydrocarbons in Olefin-Free Gasoline by Silica Gel Adsorption, Method of Test for, ASTM D 936-55; ASA Z11.86-1955 (R1960)

Oxidation Characteristics of Inhibited Steam-Turbine Oils, Method of Test for, ASTM D 943-54; ASA Z11.87-1955 (R1960)

Measurement of Freezing Points of High-Purity Compounds for Evaluation of Purity, Method of Test for, ASTM D 1015-55; ASA Z11.88-1955 (R1960)

Determination of Purity from Freezing Points of High-Purity Compounds, Method of Test for, ASTM D 1016-55; ASA Z11.89-1955 (R1960)

Oxygen in Butadiene Vapors (Manganous Hydroxide Method), Method of Test for, ASTM D 1021-55; ASA Z11.90-1955 (R1960)

Sampling Liquefied Petroleum Gases, Method of, ASTM D 1265-55; ASA Z11.91-1955 (R1960)

Vapor Pressure of Liquefied Petroleum Gases, Method of Test for, ASTM D 1267-55; ASA Z11.92-1955 (R1960)

Sponsor: American Society for Testing Materials

PHOTOGRAPHY

American Standards Approved

Sensitometric Exposure of Artificial-Light-Type Color Films, Method for, PH2.20-1960

Sponsor: Photographic Standards Board

Photographic Grade 1-Phenyl-3-Pyrazolidone, Specification for, PH4.136-1960

Photographic Grade Sodium Thiosulfate, Anhydrous (Anhydrous Hypo), Specification for, PH4.250-1960 (Revision of PH4.250-1953)

Photographic Grade Sodium Thiosulfate, Crystalline (Crystal Hypo), Specification for, PH4.251-1960 (Revision of PH4.251-1953)

Photographic Grade Ammonium Thiosulfate Solution (Ammonium Hypo Solution), Specification for, PH4.252-1960 (Revision of PH4.252-1953)

Photographic Grade Ammonium Thiosulfate (Ammonium Hypo), Specification for, PH4.253-1960 (Revision of PH4.253-1953)

Photographic Grade Sodium Bisulfite, Anhydrous (Sodium Metabisulfite), Specification for, PH4.276-1960 (Revision of PH4.276-1958)

Sponsor: Photographic Standards Board

In Board of Review

Photographic Sheet Paper for General Use, Dimensions for, PH1.12- (Revision of PH1.12-1953)

Industrial X-ray Sheet Film (Inch Sizes), Dimensions for, PH1.15- (Revision of PH1.15-1953)

Graphic Arts Sheet Film (Inch and Centimeter Sizes), Dimensions for, PH1.16- (Revision of PH1.16-1953)

16-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.33- (Revision of Z38.1.52-1951)

16-Millimeter 200-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.34- (Revision of Z38.1.53-1951)

35-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.35- (Revision of Z38.1.54-1951)

70-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.36- (Revision of Z38.1.55-1951)

Sponsor: Photographic Standards Board

In Standards Board

Micro-Opaques, Specifications for, PH5.5-

Sponsor: American Library Association

TEXTILES

In Standards Board

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics, ASTM D 462-59; ASA L14.28- (Revision of ASTM D 462-53; ASA L14.28-1954)

Methods of Testing Felt, ASTM D 461-59; ASA L14.52- (Revision of ASTM D 461-57T; ASA L14.52-1959)

General Methods of Testing Woven Fabrics, ASTM D 39-59; ASA L14.68- (Revision of ASTM D 39-49; ASA L14.68-1951)

Methods of Test for Number of Neps in Cotton Samples, ASTM D 1446-59T; ASA L14.97- (Revision of ASTM D 1446-53T; ASA L14.97-1957)

Method of Test for Micronaire Reading of Cotton Fibers, ASTM D 1448-59; ASA L14.99- (Revision of ASTM D 1448-56; ASA L14.99-1957)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Withdrawal Being Considered

Test Method for Dimensional Changes in Textile Fabrics (Other Than Cotton and Linen), AATCC 40-1952; ASA L14.76-1960

Test Method for Colorfastness to Mercerizing, AATCC 51-1952T; ASA L14.80-1956

Test Method for Damage Caused by Retained Chlorine, AATCC 69-1958T; ASA L14.86-1960

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

AMERICAN STANDARDS PROJECTS

Small Tools and Machine Tool Elements, B5—

Sponsors: American Society of Tool and Manufacturing Engineers; Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; The American Society of Mechanical Engineers

A proposed standard on spindle nose construction of horizontal boring machines is being distributed for

criticism and comment. Those interested may obtain copies of the tentative draft without charge by writing G.C. Finster, Standards Manager, the American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N. Y.

Code for Pressure Piping, B31—

Sponsor: The American Society of Mechanical Engineers

Interpretations submitted by the sponsor.

From time to time certain actions of Sectional Committee B31 are published for the information of interested parties. While these do not constitute formal revision of the Code, they may be utilized in specifications, or otherwise, as representing the considered opinions of the committee.

Pending revision of the Code for Pressure Piping, B31.1-1955, the sectional committee has recommended that ASME, as sponsor, and ASA publish selected interpretations so that industry may take immediate advantage of corresponding proposed revisions. A number of cases concerning piping in nuclear power plants have been approved for publication. Cases N-1, N-7, N-8, N-9, and N-10 have been published in previous issues of THE MAGAZINE OF STANDARDS. Cases N-2 and N-6 are not ready for publication at this time, but are currently under review by the Advisory Committee on Nuclear Piping. The most recently approved cases, N-3 and N-4, are published below.

CASE N-3

Inquiry: May screwed connections in which threads provide the only seal be used in nuclear piping systems?

Reply: It is the opinion of the committee that screwed connections in which threads provide the only seal shall not be permitted in nuclear piping systems.

CASE N-4

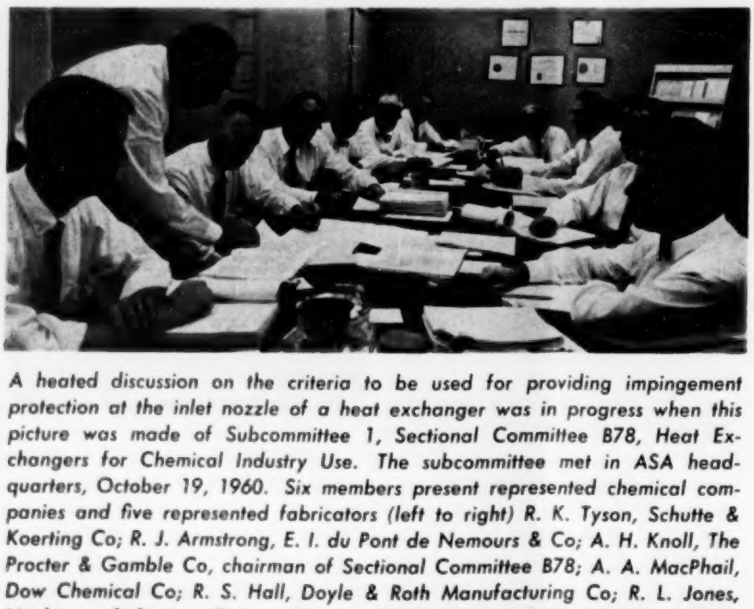
Inquiry: Section 1 of Paragraph 121C of the Code for Pressure Piping limits the temperature of the hydrostatic media to 100 F maximum. May this limit be exceeded on nuclear piping systems?

Reply: It is the opinion of the committee that, pending revision of Section 1, the 100-F maximum may be exceeded.

NOTE: Case N-9 (published in the June 1960 issue of this magazine) has been re-opened with the following change in Paragraph 4:

"4. Repair of Defects:

(a) Defects shall be removed to sound metal and the surface of the cavity rendered clean."



A heated discussion on the criteria to be used for providing impingement protection at the inlet nozzle of a heat exchanger was in progress when this picture was made of Subcommittee 1, Sectional Committee B78, Heat Exchangers for Chemical Industry Use. The subcommittee met in ASA headquarters, October 19, 1960. Six members present represented chemical companies and five represented fabricators (left to right) R. K. Tyson, Schutte & Koerting Co; R. J. Armstrong, E. I. du Pont de Nemours & Co; A. H. Knoll, The Procter & Gamble Co, chairman of Sectional Committee B78; A. A. MacPhail, Dow Chemical Co; R. S. Hall, Doyle & Roth Manufacturing Co; R. L. Jones, Machinery & Systems Division, Carrier Corporation; J. B. Bergdoll, York Division, Borg-Warner; C. H. Gilmour, Union Carbide Chemicals Co; H. Neil Worsham, Yuba-Tulsa Corp; Clifford A. Patch, Shell Chemical Corp; R. J. Dunn, The Procter & Gamble Co.

Classification and Designation of Surface Qualities, B46—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Revision of American Standard B46.1-1955, Surface Roughness, Waviness, and Lay, is the current objective of Sectional Committee B46, according to its new chairman, F. W. Witzke. Mr Witzke is manager, sales engineering, Cleveland Instrument Company.

F. W. Witzke

The revision is being made in view of the fact that the ABC meeting in June, 1960, cleared up the remaining few points of conflict between the U.S., Canadian, and British surface texture standards, Mr Witzke explains. Specifications made and measurements taken in conformance with these standards will be in complete agreement.

In the future the committee plans to explore the possibility of developing standards for specification and measurement methods other than the stylus type currently covered.

The overlapping of surface finish, waviness, and lay with the measurement of roundness also leads the committee to believe that standardization of the various methods of roundness measurement is becoming more desirable, Mr Witzke reports.

A graduate of Fenn College with a Bachelor of Science degree in Electrical Engineering, Mr Witzke was employed, prior to World War II, in inspection, production, and research laboratory functions at the P.A. Geier Company, Weatherhead Company, and Jack and Heinze, Inc. During the war, he was with the Army Ordnance Corps in Africa, Italy, and France.

From 1952 to 1956, Mr Witzke was product manager, Surface Finish Instrumentation, at Brush Electronics Company, Clevite Corporation. Since then he has been in his present position.

A member of the Society of Automotive Engineers, Mr Witzke has been instrumental in the conception and marketing of a number of new gage designs and has several patents pending in this field. He has been active on Sectional Committee B46 since 1952.

Standardization and Unification of Screw Threads, B1—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Correction

The publisher has called attention to a number of typographical errors in American Standard Unified Screw Threads, B1.1-1960. If you have already received your copy, please make the following corrections:

Page 13: For 7/16 – 28 Thread, class 3B, Maximum Minor Diameter, revise to read "0.4051."

Page 15: For 7/8 – 9 Thread, class 3B, Maximum Minor Diameter, revise to read "0.7681."

Page 22: For 1 7/8 – 6 Thread, class 2A, Minimum Pitch Diameter and Pitch Diameter Tolerance, revise to read "1.7558" and "0.0084," respectively.

Page 23: For 2¼ – 6 Thread, class 2A, Maximum Pitch Diameter and Minimum Pitch Diameter, revise to read "2.1391" and "2.1303," respectively.

For 2¼ – 6 Thread, class 3A, Maximum Pitch Diameter and Minimum Pitch Diameter, revise to read "2.1417" and "2.1351," respectively.

For 2 3/8 – 6 Thread, class 2A, Minimum Major Diameter, revise to read "2.3541."

For 2 3/8 – 6 Thread, class 3A, Minimum Major Diameter, revise to read "2.3568."

Page 26: For 3 7/8 – 6 Thread, class 3B, Pitch Diameter Tolerance, revise to read "0.0094."

Page 27: For 3 7/8 – 6 Thread, class 2A, Minimum Major Diameter, revise to read "3.8538."

For 3 7/8 – 6 Thread, class 3A, Minimum Major Diameter, revise to read "3.8568."

Page 28: For 4 – 12 Thread, class 3A, Pitch Diameter Tolerance, revise to read "0.0049."

For 4 1/8 – 16 Thread, class 3A, Minor Diameter, revise to read "4.0483."

Page 29: For 5 – 6 Thread, class 2A, Minimum Major Diameter, revise to read "4.9787."

For 5 – 6 Thread, class 3A, Minimum Major Diameter, revise to read "4.9818."

For 5 1/8 – 6 Thread, class 3B, Maximum Pitch Diameter, revise to read "5.0270."

Page 85: Table 27, Column 10, change "0.0156" to "0.0155."

Table 27, Column 18, change "0.0138" to "0.0134."

Page 108: Table 39, for 7/8 – 9 Thread, make the following corrections:

Column 5, change "0.7685" to "0.7681."

Column 6, change "73.8" to "74.1."

Column 12, change "0.7685" to "0.7681."

Pages 128 and 129: Transpose these pages.

Abrasives, B74—

Sponsors: Grinding Wheel Institute; Industrial Diamond Association

Henry J. Jeffers succeeds F. A. Upper as chairman of this recently organized sectional committee. Mr Jeffers is sales manager of the Bonded Abrasives Division, The Carborundum Company, Niagara Falls, N.Y.

Henry J. Jeffers

Born and educated in Toronto, Ontario, Mr Jeffers started his career with the Imperial Optical Company, subsequently changing to the John Inglis Company, Ltd, of Toronto. There he developed a method for manufacturing gage blocks and supervised their manufacture. In 1944 he joined the Canadian Carborundum Company as a field sales engineer and two years later transferred to the parent firm as a senior engineer. Since 1957 he has been sales manager of the Bonded Abrasives Division.

As chairman of Sectional Committee B74, Mr Jeffers says, he plans to work for the establishment of a standard symbol to indicate types of abrasive grain ranging from friable to heavy duty; standardization of commonly used sizes and shapes of grinding wheels; and to develop a method to indicate letter grade hardness of grinding wheels.

Mr Jeffers has also just been named as the Grinding Wheel Institute's representative on ASA's Standards Council and on the Mechanical Standards Board.

Coupling Capacitors, Potential Devices and Line Traps, C93—

Sponsors: American Institute of Electrical Engineers; National Electrical Manufacturers Association

At the organization meeting of this new committee in June 1960, five task groups were set up: (1) General standards and definitions; (2) Coupling capacitors; (3) Potential devices; (4) Line traps; (5) Guides for trap, coupling capacitors and potential devices.

The scope of Sectional Committee C93 has been approved as: "Standards, specifications, methods of test, guides to operation and maintenance, and definitions for coupling capacitors, potential devices, and line traps for electric power systems."

It has been proposed recently that this scope be expanded to include line tuning equipment, transmitters, and receivers for electric power systems.

The committee has already recommended a draft American Standard for consideration by the secretariat of the International Electrotechnical Commission Technical Committee 38, Instrument Transformers.

L. F. Kennedy

Chairman of Sectional Committee C93 is L.F. Kennedy, manager, System Protection and Control Engineering, Electric Utility Systems Engineering, General Electric Company, Schenectady. J. F. Chapman, sales manager,

Relay Department, Westinghouse Electric Corporation, Meter Division, Newark, N.J., is secretary.

Mr Kennedy has been with GE since 1922, and during the 1920's performed some of the earliest automation work on hydraulic turbine-driven generators and on electric utility substations. From 1929 to 1939, he was in charge of relay design in GE's Philadelphia Works. He has been associated with the relaying, communication, and supervisory control areas of the Central Station Engineering staff (later Electric Utility Systems Engineering) since 1939. Mr Kennedy is a Fellow of the AIEE. He has written many AIEE papers concerning system protection and control.

J. F. Chapman

Mr Chapman is a professional engineer and member of AIEE. He joined the Westinghouse Railway Department at East Pittsburgh in 1930. In 1935 he transferred to the Newark, N.J., meter division as a relay design engineer, and in 1948 was made relay sales manager.

Data Processing Machines (Including Digital Computers), X3—

Sponsor: Office Equipment Manufacturers Institute

Herbert S. Bright, who has just taken office as director of engineering activities of OEMI's Data Processing Group, is now chairman of Sectional Committee X3. He is also assisting in administration of the secretariat of the international project on data processing equipment, ISO/TC 97. The secretariat of TC 97 has been assigned to the United States. In administering this international project, he will work with John H. Howard, director, Data Processing Group, OEMI, and with Dr J. W. Barker, OEMI consultant.

Mr Bright comes to the Office Equipment Manufacturers Institute's Data Processing Group from Bettis Atomic Power Laboratory of Westinghouse Electric Corporation where he was supervising scientist of the computational planning section. He is a graduate of the University of Michigan and has carried graduate work at the University of California. He has been secretary and vice-president of SHARE (IBM 704, 709, and 7090 users group) and president of PUG (Philco users group). Within the Institute of Radio Engineers he is a member of the Electronic Computer Definitions Subcommittee and chairman of the Pittsburgh Professional Group on Electronic Computers Chapter. He is also a member of the Subcommittee on Logic and Switching Theory of the American Institute of Electrical Engineers.

Mr Bright is serving as chairman of the Standards Committee of the Association for Computing Machinery, associate editor of *Communications of the ACM*, member of the ACM Council, and member of the editorial board.

Sectional Committee X3 held its organization meeting August 4, and already has six subcommittees at work.

Industrial Equipment Installation and Utilization, Z83—

Sponsor: American Gas Association

The first meeting of this new committee was held September 21, 1960. Robert A. Modlin, East Ohio Gas Company, Cleveland, Ohio, presided as chairman. E. L. Spanagel, Rochester Gas and Electric Corporation, Rochester, N.Y., is vice-chairman, and Ralbern H. Murray, American Gas Association, is secretary.

Robert A. Modlin

The scope of the committee covers: "Establishment of basic standards for the installation, safe operation, testing, maintenance, and nomenclature of industrial gas utilization equipment and such remote in-plant gas-air proportioning and mixing equipment which may be employed with that utilization equipment. These standards are also to include in-plant gas piping supply systems and other engineering and design factors not covered by Project B31."

Project B31 deals with the American Standard Code for Pressure Piping.

Three subcommittees were organized at the September meeting: (1) Installation of Consumer-Owned Gas Piping and Gas Equipment on Industrial Premises; (2) Installation and Operation of Gas Atmosphere Generators; (3) Installation of Gas-Burning Equipment in Large Boilers (to handle American Standard Z21.33-1950, now under the jurisdiction of Sectional Committee Z21, Approval and Installation Requirements for Gas-Burning Appliances).

A graduate of Wabash College, where he majored in chemistry, Mr Modlin spent the war in the U.S. Navy as a torpedo and gunnery officer. Since the war he has been with the East Ohio Gas Company, now as assistant general sales manager. Mr Modlin is a member of the AGA Industrial and Commercial Section "Hall of Flame," and is AGA chairman of the Industrial Gas Practices Committee.

E. L. Spanagel

Mr Spanagel is a graduate of the University of Michigan with a degree in electrical engineering. He has been with the Rochester Gas and Electric Corporation since 1919, and is now manager, Commercial and Industrial Sales Department. He was elected to AGA's "Hall of Flame" in 1956, and has been a member of the Managing Committee since 1959. He was chairman of the AGA Industrial Gas Practices Committee from 1952 to 1956.

As a member of the American Society for Metals, Mr Spanagel was an

officer of the Rochester Chapter from 1936 to 1947, serving as chairman in 1946. He was national treasurer and a member of the National Board of Trustees from 1947 to 1949.

Concerning the work of the new committee, Mr Modlin says: "The application and use of industrial gas equipment have increased greatly during the past few years and there is every reason to believe they will continue to increase. The development of standards for safe and satisfactory installation and operation of such equipment is of vital importance to users as well as manufacturers of equipment, gas suppliers, insurance groups, and municipal authorities."

Electrical Measuring Instruments, C39—
Sponsor: Electrical Standards Board

A revised scope, just approved, opens the way for Sectional Committee C39 to consider standards for electronic instruments. The new scope reads:

Definitions, classification, rating, methods of test, and construction details for all types of instruments for the measurement of electrical quantities, but excluding (1) watthour meters, demand devices, and their auxiliary apparatus, and (2) special instruments.

A new subcommittee on digital voltmeters, C39-6, has now been set up by the committee.

ASA's Comment on this month's guest column

THE PERCENTAGE of vote expressed by the questionnaire Mr Jalonack mentions appears to be suggested by him as a guide to a committee in determining whether the support in the committee for a technical detail is on a sound basis. If, however, the standard is submitted to ASA for approval as "American Standard," the questionnaire and its results would be one of the details in the record of the development of the standard that ASA would review. This would be done to determine if those objecting to the standard on the basis of the technical details had been accorded their day in court and if, in the circumstances, there existed a national consensus of those substantially concerned. In the last analysis, the final vote within the committee on the basis of a consensus, regardless of the percentage, would count rather than that obtained from a questionnaire.

A Guest Column

STANDARDS ALIVE

by H. M. JALONACK

RECENTLY, THE SUGGESTION WAS MADE that users alone should create standards. Such a proposal is basically unsound. Nationally acceptable standards—standards that are alive—voluntarily applied by users and manufacturers of the product or process standardized must be prepared by users, manufacturers, and others concerned. Users must rely on manufacturers for data as to the feasibility of the proposed design, the economic problems from a manufacturing viewpoint, and experience as to what has proved acceptable. Manufacturers must look to users for what they need in terms of performance and interchangeability. And government groups and technical experts must determine the effect of the standard in terms of the public interest. A "standard" created by manufacturers alone could prove to be completely unacceptable to users. A "standard" created by users alone could prove to be completely impractical from the manufacturing point of view, or so costly to use as to negate its widespread acceptance.

Fortunately, American Standards are developed by committees representing both users and manufacturers, in addition to general interests, such as scientists and government people; when developed in other ways, they must be soundly supported by a national consensus.

Such committees have the necessary background and experience in their membership to choose details that are widely accepted in practice for incorporation in a standard. However, should the committee fail to agree on such details or should insufficient data be available, the committee should send a questionnaire to an appropriate list of advisers, users, and manufacturers.

What constitutes a satisfactory answer to such a questionnaire? One hundred percent agreement on a particular solution would be something of a miracle and is not to be expected. Fifty percent in favor of the item is definitely too low to serve as a satisfactory guide and is nondecisive, since a small change may reverse the findings.

The writer believes that anything less than 75 percent agreement that a proposal is accepted practice is inadequate. Even at 75 percent, the committee should take a close look at the comment of the dissenting 25 percent before incorporating the suggested detail into the draft standard. Sometimes only one dissenter may raise a valuable point previously overlooked. If practical and reasonably economical compromises can be made, the percentage in favor of a suggested detail may be substantially increased; however, too many undesirable compromises may reduce the number of favorable votes.

A proposed standard carefully evolved under the foregoing procedure should be accepted by the members of the committee. Unless some important principle is at stake, those who do not agree with the final proposals should gracefully accept the result agreed upon by the substantial majority. They should not arbitrarily use pressure methods to upset the standard. It should be remembered that those who are unable to use the new standard for technical reasons will always be able to obtain equipment built to their specific requirements.

MR JALONACK, recently retired from the General Electric Company, has been chairman of a writing group of ASA Sectional Committee C57 on transformers for many years. He is now editor of Transmission and Distribution magazine.

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